AN EXPERIMENTAL INVESTIGATION OF CHILDREN'S EARLY GROWTH IN AWARENESS OF THE MEANINGS OF PRINTED SYMBOLS

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SECTION I

OUTLINE OF THE RESEARCH

The research reported in this thesis was prompted by and has grown out of an earlier study.[1] When that study was reported in 1952, a number of possibilities were seen by the experimenter to warrant further exploration. These possibilities were, however, numerous and staggering in their complexities. During a period of four years, an extensive examination has been made of other studies that were relevant to the sort of enquiry that was undertaken in 1952. This examination helped to make clear what had to be attempted and to plan a further enquiry.

To show how the present research has grown out of the earlier study, there follows here a brief outline of the 1952 enquiry, its results and the interpretations that were put upon the results. The possibilities for further exploration are then examined in the light of other relevant studies. How the present research is ordered as a result of this examination is then outlined.

The 1952 study endeavoured to discover if there was a correlation between the kind of classroom grouping in which children were placed and the outcomes of the children's first steps in learning to read. Two kinds of classroom organizations were explored: in one, three age levels were placed together; in the other, the children were grouped together according to chronological age.

Eight classrooms were selected for study. In each of four classrooms there were three groups of children whose ages were respectively six, seven and eight years. These classrooms were matched

1. MacKinnon, A.R., A Study of the Effects of Group Formations on Primary Grade Reading Standards. M.A. thesis, Queen's University Library, Kingston, Canada. A paper dealing with the study is awaiting publication in the Journal of Educational Psychology.

with four other classrooms in which there were children all approximately six years of age. Attention was directed principally to the six-year-old children as they started to learn to read in the two kinds of classroom organizations.

With a sociometric technique suggested by Bronfenbrenner (1943,1944) an attempt was made to discover how, in the two organizations, the children regarded the placement in reading groups of themselves and others. The assessment was made by asking the children to choose from all the members of the classroom those partners they would want to have in a "reading club". These clubs, approximately ten children in each, were set up in each classroom, each club being formed on the basis of choices the children had made for partners. Observations were made of the clubs on ten occasions of their weekly meetings.

Both before and after the period of the clubs' meetings, there was individual testing of the reading performances of the beginners. The test used was the Betts Informal Reading Inventory (Betts, 1946). Part One of the test was concerned with word-recognition. Words printed on flash cards were exposed before the child for a five second interval. Oral responses to the words were recorded as a pass or failure. When five consecutive words were missed, the child was presented with a list of all the words on the test beyond those he had seen on the flash cards. He indicated the words he knew by pointing them out and speaking them correctly. Part Two of the test was concerned with oral and silent reading comprehension. The child read specific passages of increasing complexity and difficulty. One passage was read silently, the next orally. Questions from the Inventory were spoken to the child after he had finished his reading of a passage and he gave

answers about what he had read. When the child failed all the questions on a passage or reached a level in oral reading where continual errors were made, the test was stopped. All errors made on both parts of the test were recorded for later analysis.

At the end of one school year in the two organizations, the children's performances in reading were tested by using the Dominion Achievement Test in Silent Reading, Types One and Two (Buros, 1953, p.529). This group test was part of a battery of silent reading tests constructed by Canadian educators and standardized in Canadian schools. Type One evaluated word-recognition while Type Two evaluated phrase and sentence reading. In Type One the child had to match a word with a picture on forty-eight test items. Type Two required the child to match a phrase or sentence with a picture on fifty test items. The vocabulary used in the tests appeared in books recommended for primary grades and the arrangement of the words was based on the order of difficulty in Reading Vocabulary for Primary Grades (Gates, 1926). Forms A and B of the two types of tests were used. The average of total scores a child made on both forms was used in later comparisons.

A first step in the analysis of the results consisted of a statistical examination of the number of choices given in particular directions on the sociometric test. The examination suggested that there were differences in how the children perceived their group placement in the two organizations. The children who were in company with seven and eight-year-old children chose largely within their own age level. When they chose outside their group, they directed their

choices towards the eight-year-olds. In the classrooms in which there were only six-year-old children, choices for partners were directed towards those children who seemed to be better readers. Many children who had been placed by the teachers in slower reading groups in this kind of organization appeared to be discontented with their placement and wished it changed.

During the meetings of the clubs, the seven and eight-year-old children showed a willingness to help the younger classroom members. And the younger children, in turn, showed a readiness to be helped. They accepted the corrections of their errors by the older children and seldom made the same mistakes again. They chose increasingly more difficult books to read to the clubs and sought out the assistance of the older children for help with the new vocabulary. An analysis of increases in vocabulary and scores in oral and silent reading comprehension on the Reading Inventory showed that the six-year-olds had made significant gains over the period of the clubs' meetings.

On the other hand, during the meetings of the clubs in the other organization, there was a marked reluctance on the part of the "more able" children to help the "less able". This reluctance also carried over to an unwillingness to associate with children who were in the "slower" reading groups. During class time, increased attention was given to the "less able" children in order to help them with the books they had chosen to read in the clubs. The behaviour of the other children to them remained relatively unchanged however. Further, the "more able" children appeared to be incapable of giving the kind of assistance the slower children needed. On the Reading Inventory

test, the "more able" children made significant gains in their vocabulary and comprehension scores during the period of the clubs' meetings. These gains, were, however, significantly lower than children who had the same chronological age, I.Q. score and reading readiness score in the other organization. Only slight gains were made by the other groups; the "slow" groups, in three classrooms, showing no gains at all despite having been given special attention. When groups were matched on the three criteria of age, I.Q. scores and reading readiness scores, the children in the three-age-level classroom all made significantly greater gains than their counterparts in the other organization.

Before groups were compared on the Dominion Achievement Tests in Silent Reading, the children in the groups were matched on the three criteria used in matching groups for the Reading Inventory. On the tests, the six-year-olds in the three-age-level classrooms made significantly higher scores on both Types than comparable groups in the other kind of classroom organization.

The results showed that the kind of classroom organization into which the children were placed did have some effects on the quickness with which they were learning to read. The sociometric results and observational data suggested that in the classroom organization in which the three age levels were placed together the younger children had fewer opportunities to feel failure in a way that might cripple their efforts. These children seemed to recognize what was a "more able" performance on the part of the older children but they did not seem to feel that such performance was immediately required of them. The younger children's performance seemed to be regarded by themselves -

and others - as due to the fact that they were younger persons and they could not be blamed for being so. Instead, they apparently heard in what others were doing something that they, themselves, were in part already doing and something that they would be able to do more proficiently when they were older. These opportunities were not provided by the design or ordering of the material through which they learned to read. The material offered to them was essentially of the same type in both kinds of classroom organizations. Rather, the opportunities came, it would seem, as a result of the presence of other children, one or two years older than themselves, who were showing greater expertness in working with printed symbols. And the successes and failures of the older children in reading aloud seemed to provide occasions for the six-year-olds to recognize more clearly what they should and should not be doing as they read.

For the children placed in a classroom of just their own age level, individual differences in attainment more readily revealed themselves. They worked with the same kind of reading material as the six-year-olds in the other organization, but since they were all the same age and were working on what was, principally, a common task, individual differences in attainment were more noticeable. On the common task, the children had to rely strongly on an ability to remember words or their elements. And success depended on the number of "stories" or words that they could read aloud correctly, with the teacher - and very soon the children - giving reward or admonishment for success and failure in saying the letters or words.

Few opportunities were available for all the children to hear at

close hand - and continuously - the work of children with a greater proficiency than their own. The "less able" children could only compare their attainment in oral reading with the abilities of "more able" children of their same age. No opportunities were available for the "more able" children to be assisted by hearing the more proficient reading of older children. They tended to regard their performance as the "best" in the class and reacted with disdain at lesser performances. The rest of the groups sought to reach the level of attainment set by the "more able" children but they received no help from the "more able" children and tended to be discouraged by their failure.

The observations of the quickness with which the six-year-old children were learning in the three-age-level classrooms are in close agreement with the outcomes of other group studies summarized by Roseborough (1953). These studies have shown that the learning done within a group was quicker of better quality and more permanent. The group was an aid to its members in learning, for by seeing or hearing what others did correctly - or erroneously - the individual learner was able to see more clearly what he had to do in order to improve his own performance. Further, through being criticised by persons from whom he was willing to accept criticism, he was able to see what his own mistakes were and what he had to do in order to better his own performance.

The observations of the children's groups in the two organizations demonstrated, however, that it was the composition of a group rather than a "group" per se, that was the decisive factor in determining the

quickness with which the children were learning to read. In the classrooms in which the children were all of the same age, individual performances, in most cases, were not improved when the individual was learning in the company of other learners; instead, the rate and the quality of the performance were often retarded. These findings are closely similar to other studies (Roseborough, 1953, pp. 267 - 279). Further, the frustration and conflicts that occurred between members of the groups in this organization are closely similar to, what French (1954) has called "disruptive forces" in his studies of the factors influencing the disruption and cohesion of groups. In those studies in which the group was not an aid to its members in learning, one of the principal conditions weighing against improved individual performance, was the sort of task the group was being asked to undertake. The studies have shown that the group was uncertain as to what, specifically, they were being asked to do, the steps and sequences of the activity could not be readily ascertained by the members and conflicting aims of the members precluded any pooling of resources.

In the 1952 study it is well to question whether by giving the children in the single-age classrooms a different sort of reading task the results of the study would have been the same. An investigation concerned with this question would seem more than justified in view of the difficulties encountered by the children in both organizations as they worked with the reading material.

The sort of language through which they were learning to read presented many opportunities for guessing, failure and bewilderment.

For the children in the three-age-level classroom the majority of the difficulties encountered in the reading material could be cleared, in a large part, because of the help provided through the composition of their reading groups. In the single-age classrooms, the composition of the reading groups was not adequate to cope with the difficulties encountered in the material. Nor was it adequate to provide an encouragement to the readers to study more thoroughly what they were doing and would later be able to do in gaining a power to use written symbols. Before investigating further how older children can help younger children to learn to read, it would seem imperative to examine more intensively how children of the same age can learn from one another and aid each other in their learning. Such a study would seem to require as a first step, the working out of a reading programme that would be differently ordered and arranged than that set before the learners in the 1952 enquiry. What would seem to be needed in such a programme is an ordering of the words, the sentences and the sequences through which children learn to read, in such a way as to reduce, to a minimum, opportunities for early mistakes and confusion.

In the present day, much has already been done towards working out such a programme for beginning readers. In the numerous writings about beginning reading increasing attention is given to the hard thought that has been done about the nature of language and to the many specialized linguistic and psychological studies of the reading process. Today beginning reading is seldom viewed merely as the mastery of mechanics - that it consists only in the ability to recognize words

and produce the appropriate sound when confronted with them in print. Gray (1956, Chapter 4) maintains that learning to read must include not only recognizing the important elements of meaning in their essential relations but also the further processes of reflection, critical evaluation and the clarification of meaning.

A number of critics (Bester, 1953; Flesch, 1954; Neatby, 1953) claim that current practices in the teaching of beginning reading are not designed to foster the sort of reading that Gray has stated should be aimed at. The critics maintain that the habits inculcated at the early stages can be found in many students now at the college and university levels. These are students who are highly skilled in the collection, manipulation and reproduction of facts and opinions but who are relatively unpracticed in discriminating between them, in making hard choices about what should be meant and in carefully balancing different kinds of importance. Recently, Professor M.D. Vernon (1956) has stressed the importance, in the improvement of reading, of many of the things which the critics feel are being left out in early reading instruction. Her concern, however, is with students who have already mastered the "mechanics of reading".

Gray (1956, p.121) maintains that much more than is presently done should be attempted at the beginning stages. Learning to read, in his view, should be seen as a continuing process rather than as something that is over and done with at some point in the primary school. He suggests that increased emphasis should be placed on "methods of attack" in the early stages so habits learned then might have a continuing value throughout the whole activity.

The revised view of beginning reading that is now being advanced by many writers stresses that the early stages are not only a time when "skills" are developed but are also a time when life-long habits are established. In a number of books on beginning reading (Anderson and Dearborn, 1952; Tinker, 1952; Russell, 1949; Gray, 1956) attempts are now made to combine methods into a unified programme of instruction. F. Whitehead (1956) in his examination of the UNESCO survey, has pointed out the dangers of unwarranted eclecticism in the present trends. Methods may be brought into a programme and may contribute little - or even impede - meeting the objectives of reading instruction. Also, without a clear view of what is being aimed at, teachers may try, in wasteful fashion, many diverse and conflicting methods in the hope of "hitting the target blunder-buss style". What would seem necessary now that the importance of early reading is recognized is to examine what is purposed in teaching reading and to work out in detail how instruction in beginning reading might be attempted.

One person who has already done this is Professor I.A. Richards. In Interpretation in Teaching (1949, Chapter 1) and in Speculative Instruments (1955, Chapter 7) there can be found the general principles that direct his argument as to what should be purposed in teaching reading and how it can be attempted. In Section II of this thesis his conception of reading is examined within a perspective of many educational and psychological theories and studies. As this is done, a simultaneous examination is made of reading material that has been prepared for beginning readers by Richards and his colleague, Miss C. Gibson. The material they have prepared attempts to embody in its design a principle of procedure that might encompass English

instruction from its beginnings to its ends.

Learning to read, however, is not something that just happens which can be scientifically studied in the same way as can eclipses of the moon. In studying learning to read one is exploring something which has been brought about. The reading material designed by Richards and Gibson represents first, an invitation of a special sort through which the child might find out how to read. It represents at the same time, through inviting the child to learn to read, an instrument whereby the steps the child has taken can be examined.

As will be shown in Section II, the reading material embodies in its design and control much that collates many educational and psychological theories and the outcomes of many specialized linguistic and psychological studies of reading. The controls put upon the design of the material and the ordering of the sequences provide an instrument to explore intensively the stages the children go through in apprehending the letters, words and sentences.

The reading material attempts at the outset to reduce the number of opportunities for confusion, failure and bewilderment. The number of letters and words to be discriminated are limited. Only seven letters of the alphabet are used to compose the words making up the sentences in the early stages. The letters used are those least liable to be confused during a time when complex visual adjustments are being made. Confusable letters are introduced gradually and by presenting them in various contexts, opportunities are increased for the letters to be recognized frequently. The number of words used is also limited and these words are of a highly picturable kind so

as to clearly relate sense with situation. In the ordering of the words an attempt is made to "trigger-off" ideas that the child already possesses about the world and about people and can already give expression to in his speech.

The ordering of the sequences directs the learner's attention to the similarities and differences of letters and words. While these contrasts are being presented, the number of items to be compared are limited and the structure of the rest of the sentence is kept constant. Further, one sequence encourages the child to confirm what has gone before and seeks to prepare him for what is to follow. The invitation to learn to read continually directs the child to see how letters in words and words in sentences can be used for building sentences.

In doing this, the material seeks to limit the chances of the child being distracted from the task. The sentences used clearly relate to simple line drawings. The learner is encouraged to explore, through language, the world of fact; how printed symbols can point and name persons and things and how these persons and things can be given qualities and be located in space and time. And through the many opportunities offered to the child to confirm for himself how written language works, the learner is invited to participate in an exciting form of play.

Finally, there is concern in the design of the material as to what words should be used to make up the sentences. Rote repetition of the words is avoided. The words used in the reading material have been shown to be the "key words" of the language (Ogden, 1940).

Many of them, the structure words, appear highly in all frequency lists (Rinsland, 1945; Seashore, 1947; Thorndike and Lorge, 1944). These "key words" of the language can be given in increasingly fresh combinations as they are used to handle different meanings.

The control and the ordering of the sequences would seem to make possible an instrument whereby children's growth in learning to read can be more systematically examined. Since every sequence is dependent on what has gone before and prepare for what is to follow, the modes and causes of successes and failures can be explored. An instrument would also seem to be provided for studying how children, learning to read with other children, can help or hinder each others' progress.

The simplified material is designed to yield meaning at different levels. Opportunities are provided whereby the brighter child may find food for thought in the details which his slower neighbour might be ready to deal with only at face value. By providing for individual variations in the ways children learn, an opportunity is also given for observing these variations as they occur during the reading of the material. Deese (1952, p.238) maintains that this must be one of the primary consideration in designing research for the study of beginning reading. Further, the invitation to learn to read is closely related to the ways in which all the children in the group are already ordering their speech. By presenting the invitation to a number of children, what they all already consummately do well can be used as the channel for letting them learn something that they cannot, as yet, do.

Other considerations impinge on the present research. These are primarily concerned with the design of the study and are worked out in detail in Section 111. The experimental procedures given there stem directly from the earlier study but a number of attempts are made to control more adequately the variables connected with group studies.

In the earlier study the reading clubs ranged in size from seven to ten children. Because the clubs were formed on the basis of sociometric choices, there was also an unbalanced proportion of sexes in the clubs. Both these variables have been shown to influence the amount and the kind of participation of the group members (Roseborough, 1953, p. 288). Also, before adequate observations can be made, the group has to be small enough for account to be taken of all the members' activities, yet large enough for the members to function as a group. In the earlier study, no exact account could be taken of the behaviour of the varied members of the clubs because the size of the group was too large for proper observation and no systematic recording technique was employed. In the present research, the number of children composing a group is kept constant and there is an equal number of boys and girls. Small groups of six children, all of the same chronological age, work with the invitation to learn to read. Techniques are devised by which the behaviour of the children can be systematically recorded.

Other studies (Roseborough, p. 276) have shown the value of being able to compare individual with group learning. In the present study' children are given the invitation to learn to read individually so

that how they work with the invitation can make more clear the modes of learning in the group. In the earlier study, this comparison was not possible.

In the design of the research one further experimental group seems necessary. Roethlisberger and Dickson (1939) showed, in their now famous study, that an increased attention to a group can be as important in determining the outcomes as any other variable. In the earlier study, there were no groups that had not received some attention. It was impossible to test whether the attention given had been constant because there were no groups who had no attention nor any group that had worked with different reading tasks. In designing the present research, small groups, of six children each, work with reading material that does <u>not</u> have the design of that developed by Richards and Gibson. The material these groups use accords closely with instructional material in daily use in their classrooms. As each of the children take turns at reading the material aloud, their successes and failures are recorded, as well as how they appear to be learning from one another. Such a study provides opportunities for examining the reading material developed by Richards and Gibson, for comparing outcomes of first steps in learning to read and for making clearer the modes of learning together. In addition to this group, there are children in the classroom who do not participate either in the individual or the group work. These children act as a further control group in the study.

One of the assumptions in the earlier study was that the teaching done in all the classrooms was of the same quality. Attempts were made to match the teachers in the two organizations but there could be no

guarantee that the quality of their teaching had not effected the results of the study. The study by Lewin, Lippitt and White (1939) of autocratic, democratic and laissez-faire leadership has demonstrated that in studying behaviour it is advisable that there should be the same person to direct all the groups. In the major study reported in the thesis, only one person directs the group and the individual learners. In one further study reported in Section VI other persons direct the learners and the outcomes of this investigation are checked with the outcomes of the major study.

Finally, the present research attempts to assess growth in learning to read on a broader criterion than was taken in the earlier study. There "learning to read" was defined in regard to attainments as measured by specific tests. Gray (1956, p. 116) contends that because learning to read is still very incomplete at the early stages, most studies of beginning reading must be regarded as inconclusive. Scott (1954), after reviewing studies of early reading, concluded that because one group does show a statistically significant greater gain in words recognized, speed or comprehension as measured by a reputable test, this is no clear proof of the superiority of the group or of the methods that were used. Scott submits that in evaluating growth in reading, the criterion that matters is the difference that improved reading makes in the life of the individual and this criterion is seldom used. Cronbach (1950) also claims that there is a limited usefulness of sheerly empirical generalizations, no matter how huge the samples on which they are based. Further research, he suggests, should put greater emphasis on intensive studies, perhaps with small samples, which will yield

understanding about changes in behaviour rather than isolated facts about scores".

Both tests used in the earlier study, put strong emphasis on increase in the size of the children's vocabulary. Dolch and Leeds study (1953) would seem to question the soundness of this evaluation of growth in learning to read. They compared the adequacy with which vocabulary tests measured children's knowledge of word meanings. They concluded that most tests do not satisfactorily measure vocabulary, that they ignore all but the common meaning of a word - and often get very little of that common meaning - and they measure a very indefinite amount of information.

Further, the comprehension tests used omitted many aspects of reading that are implied in the criticisms both Scott and Cronbach make of reading research. Professor M.D. Vernon has referred (1956. p. 89) to these aspects as "the less obvious and often more valuable effects of reading". She states that these are "the increase of general understanding, the extension of the background of knowledge, the advancement of reasoning, the development of new ideas and the growth of intellectual and cultural interests".

A selection of items for a reading test that could be based on these criteria would seem to be a most difficult task. Further, the ages of the beginning readers has limited the scope of items that test designers have felt they could use.. Ways by which many of the steps of learning to read and many of the outcomes of those steps can, at least in part, be examined is detailed in Section 111.

Already, certain of the ways have been suggested. Thus by using

controlled, sequential reading material, growth in learning to read can be examined over a period of time. How success can come about and how a growing power to use written symbols develops, can be plotted. Errors can be recorded and, because of the sequences, why those errors occurred and how the child overcomes them can be more readily seen.

The children, through learning the use of a notation peculiarly connected with speech, are given the opportunity to gain further control of not only words on paper but also their speech. They are also given opportunities to explore and to control, through words, many aspects of the world and themselves. A test has been devised in this research whereby the child might show changes in his behaviour that might have arisen through learning to read.

Both before and after the experiment begins, the children are asked to make a drawing of their classroom and what they see in it. They are then asked to tell what they put in their drawings and when possible, to write something about what they have done. What they say about their drawings is recorded. How they put words to work in their speech and writing is compared on the two occasions. In addition, the test provides opportunities for studying changes that take place in their drawings of the classroom.

In addition to the two ways of examining growth in learning to read outlined above, objective individual tests are used as well. These examine the children's growth in perceptual discrimination of words and how well they have succeeded in gaining a command of structure and its relation to sense. Individual tests are also used to examine the effects arising from increased attention received by the groups during the experiment. All the tests provide scores that are used for statistical comparison of group performances. Since the testing was

done on an individual basis, certain clues are also available for understanding how particular results were arrived at.

This thesis can represent, however, only a beginning to what would seem to be an area of study in which the interests of many specialists may converge. The relative simplicity of the work the child is doing and its crucial importance to his future, makes this field significant for learning theory, teaching method, measurement and testing, guidance and personality structure studies. All that can be attempted here is to seek a fuller understanding of those ways by which children become aware of the meanings of written symbols in ever-toughening contexts. And the study is concerned with that time point in the children's lives when they are beginning this complex mental feat in active association with other learners.

SECTION II

A PERSPECTIVE AND A STARTING POINT

To describe and to criticise the extensive research that has been done on early learning to read would require a volume. All that can be attempted in this section is to give an account of and to defend procedures, developed by Richards and Gibson, that aim at making learning to read at the beginnings stages easier and more instructive. The procedures are described within a perspective of many of the outcomes of the hard thinking that has been done about the nature of language and many specialized linguistic and psychological studies of reading. It was with such procedures that the study of how young children learn to read was carried forward in the research reported in later sections.

In setting children out in their long journey with printed symbols the principles that implicitly direct all English instruction from its beginnings to its ends are generally taken for granted. Whether they could be granted, were they made available for inspection, must be questioned, for the persistent criticisms of the outcomes of instruction and the diverse aims and practices reveal that, as yet, no connected, over-all view of English instruction exists.

An encompassing regard would seem imperative, however, for directing the design and order for the detail of presentation at the early stages. Gray (1956), writing for the UNESCO survey on methods of teaching reading and writing, has emphasized that in planning any

reading programme the specific aims to be attained are of major importance since "they influence not only its nature and its scope but also the content and methods of teaching" (p.121). What is taught as "reading" at the beginning stages and how it is taught can be endlessly influenced by the over-all aim of English instruction that accompanies the procedures. It would seem equally true that procedures in beginning reading can have, in their turn, immense influence on the later outlook and habits of those taught by them.

The stage of first seeing words as printed symbols and the stage of interpreting the words of a new and difficult author at the college level often appear as being widely separated. But to the learner such separation does not exist. Numerous research studies have shown how later stages can be still in close organic connection with earlier - and in countless ways.

Thus, the defeat, the resignation and the frustration that often accompanies the learner's earlier efforts have been shown to carry over to later reading, to other school learning and to many aspects of the individual's life (Anderson, 1942; Gray, 1940, p. 971; Monroe, 1951, p.22). Guessing at letters and words - regardless of their companions - can recur later in the form of guessing at spelling (Schonell, 1949, p.304) or meanings (McCullough et. al., 1946 pp. 105,105). Tricks, traits and habits learned earlier can persist as phases of one development either to assist the reader in his tasks (F. Whitehead, 1956, p.401) or to confuse and hinder him (Schonell, 1949, Chap.9). Under stress even the so-called "mature" reader has been found (Weber, 1949) to have difficulty with the most elementary steps of reading - correctly

recognizing words. Black's study (1954) of training college students' reading suggests that habits of understanding what was read had not been established during earlier stages. Misunderstanding of what was read was frequent. Often there was failure to understand the author's general argument and the conclusion which he drew. Key words were frequently misunderstood, especially when quite common words were used to express uncommon or abstract ideas. Even when they understood the "meanings" of words in isolation, they could not co-ordinate them together to grasp the general argument, and the intention of the writer. After making a summary and critical survey of thirty-seven research studies, Hildreth (1948) concluded that there was "convincing evidence" that what was done in the earlier stages of learning to read was directly related to later efficiency in all language attainments.

For those who entertain an optimism about the current linquistic abilities of college students, there is little reinforcement for that optimism in two books by Professor I.A. Richards - Practical Criticism (1929) and Interpretation in Teaching (1938). The bulk of these books comes principally from a documentation of modes and causes of failures of college students in reading. It is a documentation of a disarming fact emphasized more recently by Bestor (1953) and Neatby (1953) that at the end of schooling the majority of students understand remarkably little of what they read.

The detailed study Richards has made in his two books of what seem to be the principal obstacles to understanding directs attention back through the years of schooling to the first stages of learning to read.

There, as with the ends of reading, understanding appears as the primary act. The principal task of the beginner is to understand the meanings of written symbols that are both new and strange. In studying these most "elementary" matters of language the beginner is doing nothing which is, or should be, for him any simpler than what a college student is trying to do in following a new and difficult author. The prime obstacle at both stages is what Richards has termed "a helplessness before the unintelligible". Both learners face a new problem that is baffling until they can recognize in it something which they have met and dealt with already. They can be helped to clear their problems not by providing them with the "right answer" - retained at best by mere rote memory - but in helping them to make clearer, for themselves, what the problem itself was.

Coming to see how letters are parts of words which in turn make up sentences is a mental feat as complex as anything which the reader is going to attempt in the whole of his literate life. He has to come to see not only what a sentence says but <u>how</u> it says it and this at a time when delicate new controls over ocular adjustment and motion have to be established. It is well to recognize here that many children who have successfully learned to talk have great difficulties in accomplishing the mental feat of learning to read.

Richards' studies suggest that the subjection of the would-be learner's mind to too many problems being presented simultaneously is the source of most intellectual frustration. Richards submits that unordered presentation, inadequately planned, can force upon the learner, in his attempts to learn, procedures which are uninstructive. The

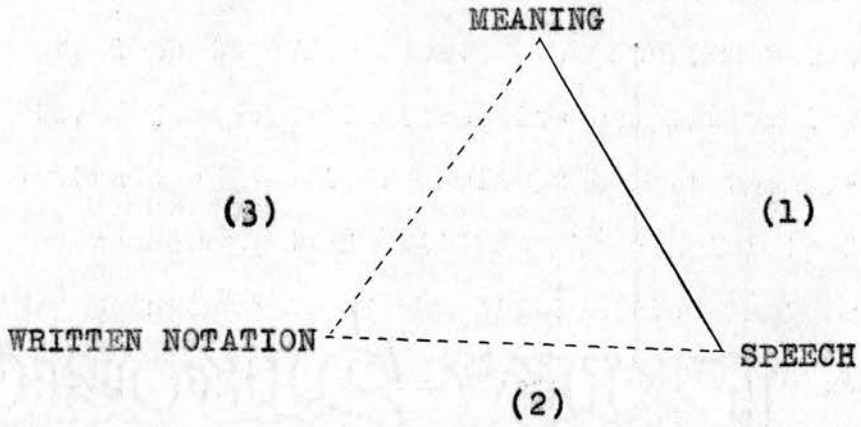
learner does not see what he is doing; and therefore, when the new, partially parallel task comes, his learning has not been built into him as a power of seeing what is required of him and how he can meet it.

The effortless ease with which some children seem to accomplish the mental feat of learning to read tends to obscure how manifold the confusions it offers are. By watching the efforts of those who struggle, a juster estimate of its complexity is obtained. Through the multitude of studies, during the past twenty-five years, of backward readers and of children who completely fail to learn to read much has been learned of the difficulties that are encountered by children in learning to see writing and to conceive how it works. It is to be expected, then, that the minute detail of how these problems are presented to the beginner may be all important for his progress with them. What would seem necessary is to protect him from everything which may channel off his limited supplies of interest elsewhere, and from every avoidable opportunity to misconceive and to mistake.

Most problems of method turn on the peculiar connection between speech and its visual notation. The connection can be indicated by saying that the notation means what the speech means. It is outside the limits of the present discussion to document the refinements that would be needed to make "means" here at all precise. Ogden and Richards (1941) have examined the problem extensively in their book Meaning of Meaning. Speech may correspond with its visual notation in other ways and part of the beginner's task in learning to read is to discover what sort of correspondence there is and how far it goes.

At this point in the discussion it would seem advisable to emphasise the connection between the three items whose relations must be examined.

If MEANING, SPEECH and WRITTEN NOTATION are placed at the corner of a triangle thus:



attention is directed to the three pairs of items corresponding to the three sides of the triangle. The clockwise order of the pairs (1) MEANING - SPEECH; (2) SPEECH - WRITTEN NOTATION and (3) WRITTEN NOTATION - MEANING reproduces a developmental sequence. The race expresses its humanity with the attainment of speech and so, in turn, does the individual. Only in comparatively recent times has notation been introduced into human affairs. Likewise, when compared with the phenomenal growth of speech during the child's life before coming to school, notation has a late introduction into the individual's life.

The already well-established connection between MEANING and SPEECH emphasizes that, for the key activities entering into learning to read at the beginning stages WRITTEN NOTATION reaches towards MEANING via SPEECH. And the over-all connections of the items emphasizes the dangers at every stage of by-passing MEANING or by-passing SPEECH.

It is now appropriate to direct separate attention to each of the three sides of the triangle. Speech is speech only when it is meaning something, otherwise it is babble. At the humblest level of making sounds, the utterance is recognized as speech only when there is something meant (McArthy, 1954, p. 523). Most of the studies of infant speech have shown that the process that results in talking begins just as soon as the infant finds that vocal noises make things happen. Talking as distinct from babbling and as distinct from the mere production of such sound sequences as da, da; ma, ma, etc. aims to produce results. How the young child becomes aware of the meanings of spoken symbols is an extremely difficult problem to explore and the ways by which he does so are still only vaguely understood (McArthy, 1954, p. 528).

But by the time most children are set the task of learning to read, they have already learned to talk and, in a large measure, to comprehend the speech of others. A number of studies have been done - many still are in progress - concerned with the stages and sequences children go through in learning to talk and to comprehend the speech of others (McArthy, 1954, pp. 523-562). A detailed examination of these studies would require more space than this discussion can include. All the studies have demonstrated, however, that by the time most children are set the task of learning to read they have made extensive progress in their growth in learning to use spoken symbols.

Even at an early age, the child indicates a capacity for using signs as symbols that is beyond the capacity of animals. Yerkes' studies of chimpanzees (1943) led him to conclude that what symbolic

capacity the animals did possess was limited to the spatial aspects of the situation. The animals showed an inability to behave "integratively" in a situation in which the problem lay in the temporal dimension. Yerkes considered that for an organism to reason it must be able "to use signs as symbols, that is, it must be able to make signs and then respond to them". Lewis' studies (1951), in agreement with earlier studies (Bühler,1930), have shown that at first the language of the child is concerned exclusively with the immediate situation in which it is spoken and that gradually it begins to deal with things that are absent. Lewis points out that the child uses speech "manipulatively" in an effort to call attention to an object which he wishes brought into the present situation.

Through his capacity to use language to deal with things that are absent, the child is able to break through the sense-limiting medium of time and to encompass time in his grasp. Wilson (1937, p. 133) in his book The Miraculous Birth of Language, points out that the child's mind quite early holds "time in a single view as the potential form in which to build up and arrange a mental world of succession and development. Whereas time and space holds the animal's mind, man's mind holds time and space. And language as a system of symbols serves to elaborate this new world".

By articulation and conventionalization, the child succeeds in making sounds that refer to objects in space as well as sequence in time and in this way transmutes sound into a single vehicle representing a space-time world. The symbols he uses are thus transformed from the realm of the senses to the realm of the imagination.

In his book Play, Dreams and Imagination in Childhood Piaget (1951) has given extensive consideration to the role of imagination in children's mental development. He refers to imagination as a form of "representative activity" which is characterized by the fact that it goes beyond the present extending the field of adaptation both in space and time. Such an activity, he claims, is essential in reflective thought as well as in operational thought. Piaget has also pointed out (p.273) that there are various forms of mental activity - imitation, symbolic activity and cognitive representation - and all are interacting.

To date there is still little knowledge - in any exact mode of knowing - of the ways children's apprehension of the meanings of symbols grown from indefiniteness to definiteness. What is happening during the apprehension of the whole and the discrimination of structural parts is extremely delicate and intricate and the tentative theoretical schema that are offered, at present, provide little guidance that might be used to direct further growth. What would seem required is that teaching procedures at the beginning stages of reading should provide occasion and room for growth for what is already an active, purposing organism. And it would seem essential, as well, that the procedures should avoid exclusively pressures that might favour one process or motion at the expense of others.

The particular sense in which "growth" was used in the preceding paragraph must be elucidated. What the procedures must provide for is "growth" with the full normative implication of the biological use of the word. The child's growth in using speech has come about through

processes about which little is, as yet, known. His further growth in the use of symbols through learning to read will largely depend on many of the same processes by which he learned to talk. Coleridge puts this point most skilfully. He urged his generation "to value earnestly and with a practical seriousness a means, already prepared for us by nature and society of teaching the young mind to think well and wisely by the same unremembered process and with the same never forgotten results, as those by which it is taught to speak and converse". (Biographia Literaria, II p. 117).

If growth is to be encouraged, the antithesis between analysis and synthesis, part and whole, component and configuration has to be avoided. Already there have been extensive disputes over what has been called analytic and synthetic methods of teaching reading (UNESCO, 1949). Gray (1956, p. 76) has pointed out that the disputes have arisen because the words were used to describe the mental processes rather than methods of teaching. "Synthetic methods" referred to a mental process of combining the detailed elements of language and "analytic methods" referred to the process of breaking down these larger units into their constituent elements. It must be distinguished here what are (a) actual mental processes or (b) the intellectual machinery of the accounts of them. The words "analytic" and "synthetic" are abstractions, theoretical machinery made for special purposes. They do not hold outside their purposes, they do not apply directly to the make-up of the mind, only to some of the phases of its activity. Hebb (1949, Chap. 2) has argued that mental processes never devote themselves exclusively to any one of the component activities into which the total mental process can be reduced by analysis. Learning to perceive the world does not have to proceed either way in any one fashion at any time. Similarly

coming to see how letters are parts of words which in turn make up sentences does not need to proceed by any single process at any one time (Vernon, 1952 p. 226).

Sentence, word and letter are not natural enemies in the child's speech. Richards has maintained (1955, p.94) that they have only been made to seem such through badly planned presentation and maladroit timing in the early stages of reading. There is still considerable debate by reading authorities as to what should be introduced first: letters, words, phrases, sentences or paragraph. The material designed by Richards and Gibson starts with all these together, with sentences short, clear and simple enough for the words, syllables and letters that compose them to be studied in the sentences themselves. By doing this Richards and Gibson attempt to protect the beginner from pressures that might favour one process or motion at the expense of others.

By effecting a reunion of letters, word and sentence in the procedures for beginning reading the ingredients making up the child's speech can be used to provide a starting point for inviting him to learn something that he, as yet, cannot do. In pre-literate speech there is a unit of utterance corresponding to a unit of meaning which we call the sentence; but it has, however, not the same structure as the sentence in the literate's mind. Fries' studies (1952) have shown that words, other than names, are artifacts of the convention of writing, largely without independent meaning. And letters to the pre-literate are non-existent. The child's new task of seeing how speech can leave

its tracks on paper calls for revolutionary perceptual adjustments to be made as well as the equally revolutionary intellectual adjustments enforced by the use of graphic symbols.

The child through learning to talk already possesses consummate skill in using spoken symbols. The letters, the words and the sentences through which he is to learn to read, however, may be such as to fail to touch off - or release - the modes of dealing with symbols already possessed by the learner. Further, they may be such as to distract the child's limited energies from the task or fail to provoke him towards further development.

Many of the outcomes of early reading practices suggest that the reading material used has exposed the learner to an unnecessary and avoidable welter of misconceptions. Schonell (1946, p. 26) has stressed that most children come to school eager to learn to read, but too many of them lose their initial enthusiasm through early failure and discouragement. He claims that the dominant reason for this is that "insufficient care is devoted to creating the correct type and amount of preparatory background for learning to read". The elaborate exercises that are now recommended (Gray, 1956, pp. 122-124) for developing "readiness to read" suggest that the sort of language presented to the learner in writing may be unsuited.

Further evidence is found to support this assertion in the disparate views on when reading instruction should begin. Gates (1937), after examining a number of intensive studies, concluded that it can no longer be assumed that there is one age when everyone is ready to read or even that everyone with a certain mental development is ready to begin the task. He states (p. 568) that "the age for learning to read

under one programme with the method employed by one teacher may be entirely different from that required under other circumstances".

There has been an increasing tendency in recent years to design early reading material in accordance with word-frequency counts that have been made of children's speech. Although the textbooks designed indicate considerable agreement in the specific words used there is much disparity in the arrangement and the ordering of the words (Kelly, 1954). All that appears to be considered in the design is that the words should have appeared in the frequency lists, they should be introduced gradually and they should make up stories that will appeal to "natural childhood interests". There is only a general regard given for the meaning of what is to be read.

It would seem essential, however, that the letters, words and sentences - the vehicles of meaning - should aim for maximum effective communication. The problem presented in design is how best to stimulate and to provoke the learner into activities of thought and how to do that in the least hampering and most available form.

The word "communication" suggests many comparisons that threaten to mislead. It frequently suggests traffic, transportation systems, or, in general, passage from one place or mind to another or the conveying of something. Attempts to discover what is conveyed, to conceive of the process or to examine instances of adequate and inadequate communication reveal the perilous implications in the metaphors connected with the word. Communication, and particularly the conditions governing the process are extremely complex.

For the engineer, communication is restricted to the statistics of the transaction passing through a channel (Shannon and Weaver 1949). The individual messages are outside his concern. For persons concerned with the design of early reading material, another conception of communication is needed - although much of the conception will rest upon statistical theory inasmuch as signs are involved. There has to be concern, however, for sign interpretation.

"Communication" can name what happens when processes in one mind induce more or less similar processes in another. But "induce" tells little about how communication takes place. There have been numerous attempts to develop a theory about what could be taking place. One of the more recent is that given by Morris (1946) in Signs, Language and Behaviour. He speaks of signs selecting responses in their recipients; such responses are not only the external movements or utterances evoked, but are partly represented by the physiological correlate of the recipient's belief - the ways in which probabilities to him are ranked and stored in the brain. Cherry (1955) has attempted to clarify and extend Morris' theory. He points out that the "participant observer" possesses an immense store of beliefs from his past communicative activities - beliefs about syntax, about different words and their uses, about different subjects and conversation, about his partner's background and, in particular beliefs about his partner's beliefs. Cherry maintains that communication is basically a process of inductive inference. Evidence is received in bits and pieces through snatches of

sound or print and judicious guesses are made - in slight part consciously.

Most writers on communication admit that, as yet, little is known about the general conditions governing the process (Whatmough, 1956, Chapter 11). Most persons have limitless experience of it, however. Everyone as he talks is almost incessantly engaged in more or less faulty communication. Jesperson (1922) maintained that the essence of language was human activity - activity on the part of one individual to make himself understood by another and activity on the part of the other to understand what was in the mind of the first.

Studies of the difficulties found by persons with brain damage in communicating with others (Head, 1926) have indicated the complexity of the activity. The studies illustrate how the mind, when in health, is continually conceiving of meanings. What pass from mind to mind - but only as waves, forms of change - are the words, pictures or other vehicles of communication, and whether the right ideas then develop - and communication succeeds - depends on the presence in the receiving mind of the right prior ideas, the necessary conditions of their growth. This would seem to be a first obvious requisite of communication.

This discussion of communication points out the risk in supposing that the structure of the utterance can be rightly conceived through taking the separate grammatical units as the units of meaning. Richards (1935, p.101) has pointed out that words "are not necessarily the units of meaning. A word by itself apart from an utterance has no meaning - or rather it has too many possible meanings. Only as its possible meanings combine with those of other words does it gain any meaning".

In making word frequency tabulation of children's speech at different ages the risk of taking single words as the unit of meaning has been increasingly recognized (McArthy, 1954, pp.528-9). And Dolch and Leeds (1953) in their comparison of vocabulary tests have shown how reputable tests can ignore all but the common meaning of a word - and often get very little of that common meaning.

If there is to be maximum effective communication, then, with the beginning reader, the sort of words selected, their arrangement in the sentences and the sequences of the sentences that are made would seem to be of paramount importance. Richards and Gibson have attempted to provide, in the design of their reading material, sentences that will have a central, general, clear and highly familiar meaning for the beginner. The sentences attempt to clearly relate sense to situation in such a way that the child can be in no doubt as to the meaning of the sentence. The meanings are such that they might be fully examinable and be illustrated in a picture and other ways. For example, the sentences in the first sequence are:

This is a man. 

This is a hat. 

Ames and Learned's studies of children's speech (1948) have shown that before the child begins naming objects in space, he spends considerable time in looking at and pointing to the object. In the example given above, the beginning reader is invited to see how printed symbols can point and name persons and objects. The pointing-naming statement serves in the

reading material as the mode through which most of the names of things are introduced to the learner. Locating statements, for example, "He is here", are used to say where someone or something is. Locations, in turn, become more exact by the use of such words as "in" and "on" and names are given qualification by the use of such words as "his" or "these".

The pictures at the end of each sentence - or beside a sequence of sentences - are designed to act as a kind of non-verbal abstraction to explain what the sentence is saying. These pictures differ from those used to illustrate the "stories" in most modern reading textbooks. Often, as F. Whitehead (1956, p.404) has pointed out, the illustrations in beginning reading textbooks bear only the most perfunctory relationship to the words making up the text they are supposed to illustrate. Often the elaborate drawings-and the bright colours that are generally used-threaten to distract attention from the printed symbols the child is supposed to be studying. In contrast to these drawings, the pictures that appear in the Richards - Gibson material are line drawings. They include only the basic structure of the objects they illustrate. In this simplicity there is a close parallel with the way children, in their own drawings, tend to pick out of a complex structure the main outlines in order to make their representation (Arnheim, 1956, Chap.4). There would seem to be less chance of the drawings in the Richards - Gibson material distracting attention; instead they serve to make what is read more clear. And because of their simplicity, the child might also be encouraged to make similar drawings, by himself, to illustrate the sentences.

These accompanying illustrations vary systematically, in turn, as the meanings of the sentences shifts. The drawings serve to point out how meanings can be combined with other meanings and how the sentences vary accordingly. For example, one sequence includes the following sentences and accompanying illustrations:

This is a man. 

This is his hat and this is his hand.

This is his hat.

It is in his hand.

The sentences and the sequence of sentences admit of interpretation with the minimum risk of misunderstanding and they also seek maximum preparation for further communication. The examples already given illustrate a condition found continually in the material. While the undertaking of actually seeing different words as different and of seeing <u>how</u> they are different is underway, the structural framework is kept the same in a sequence. This is only one of the ways that Richards and Gibson attempt to make learning to read easier. Another way is by limiting the vocabulary and content of the sentences. And to make the perceptual adjustments easier there is a simplification in the number and discriminability of the letters making up the words. Each of these ways of simplifying the learner's task must be considered. Consideration is first made of how the learner's task might be made easier through controlling the letter intake. Such control would seem advisable in the light of outcomes of research on eye movements in reading.

Gray (1956, Chap. 3) had made a detailed summary of these studies. The outcomes of such research have effectively challenged the once widely held view that reading proceeds by letters. For the adult reader, the most common behaviour is for the eyes to move from left to right along the line, by short, quick movements and pauses, followed by a rapid return sweep from the end of one line to the beginning of the next. The eyes pause, as a rule, from 4 to 10 times along a line of ordinary length. The first pause is a short distance from the beginning of the line and the last pause is somewhat farther from the end of the line.

Individuals vary widely in the number of pauses made in reading specific passages and, as a result, in their speed of reading. The eyes of a "mature" reader make a relatively small number of pauses and they can score highly on testable aspects of comprehension.

Vernon (1931) has shown, however, that regular eye movements and short fixations are not always the case for even the "mature" reader. When reading something difficult, something which necessitates close study or something very interesting or exciting, then the eye movements become irregular. The "good" reader, she claims, makes prolonged pauses and frequent regressions to the point of interest and importance. Vernon has pointed out in a later paper (1956, p. 87) that because some readers quickly become confused or make mistakes or leave out important points, they have constantly to regress and refixate what they have already read.

A number of special programmes have been devised (Glock,1949) for

these readers to help them to train their eyes to a "mature" level of behaviour. Their successes in these programmes illustrate that faulty habits can be learned early and can persist until such time as efforts are made to remove the faulty habits and provide better ones (Weber, 1949).

The question arises if something more could be done to simplify the quite new perceptual problems that face the beginning reader. Particular optical controls are called for and faulty habits can quickly be established (Gilkey and Parr, 1944). Modern reading practices emphasize that pupils should be taught to recognize short words as units from the beginning stages. This practice is based on the principle that the recognition of familiar forms takes place by a reaction to the pattern or whole that is perceived. Sentences and short "stories" are introduced as soon as the pupil "knows" just a few words. Spelling out and analysis of syllables that used to be the beginning of instruction are now taught as reserve techniques so that, in Cronbach's words (1954,p.15) "they can be a low-gear that the reader uses when he encounters a word that defies instant recognition".

The studies of the behaviour of the eyes in reading have shown, however, that reading can take place by words or phrases, by groups of letters or by individual letters according to the familiarity of the material and its difficulty (Gray, 1956, p.44). In the recognition of new words at the beginning stages of reading, certain letters or groups of letters are perceived more quickly than others. These are letters which have distinctive shapes or which extend above or below the line. These attract attention and provide clues for the recognition of the

word as a whole. Often these are the only clues that are used by many readers. Their attention has never been directed towards the other letters making up words in such a way that the letters may become familiar as well.

Twenty-six letters may not seem to be an overwhelming number to discriminate when compared with non-alphabetic languages such as Chinese. But when these letters occur in a great variety of positions within words, within sentences meaning different things and when delicate ocular adjustments are being made, the task appears particularly complex. A selection of letters which are easy to discriminate would seem to be a wise plan. To date, no attempt has been made to do this in modern reading textbooks for beginners.

Certain letters invite confusion primarily on biological grounds. Studies of perception have shown that certain forms which are more or less symmetrical or more or less complete forms or "gestalts" of each other can cause difficulties in perception. Certain letters of the alphabet are symmetrical such as p d, g b, u n, p q, and d b, and certain letters are more or less complete forms of other letters, for example, o, c and e. Goldschieder and Müller reported (1893) that these letters can cause confusion and foster faulty habits that are most difficult to eliminate. In more recent studies these letters are named as frequently causing confusion (Gilkey and Parr, 1944) and as one of the diagnostic signs in "developmental aphasia" (Ingram and Reid, 1956).

The avoidance of those letters that invite confusion would seem advisable at the early stages of learning to read. Richards and

Gibson control the letter intake in their reading material by picking only one letter from those that invite confusion and postpone the introduction of its rivals. This letter is combined in various ways with other letters that are relatively easy to discriminate. A careful selection of the letters provides for a considerable supply of words for use in short sentences and which are also words of a highly picturable kind. The number of letters forming the words of the first sentences is limited to seven: a, h, i, m, n, s, and t, with e, d, and r being added early. The simplification aims to reduce the opportunities for confusion and also to increase the frequency of each exercise of recognition. Further, the small number of letters making up the words halves the recognition task so that the details making up the words and the details of the letters may become familiar to the reader through having repeated attention drawn to those details.

Gray (1956, p. 44) has stressed that if the reader is to be successful in recognizing words or groups of words he must be intent on the meaning of what is read. If what is read, however, possesses for him a highly familiar meaning, then details of the words can be studied. Numerous opportunities for doing this are provided in the Richards - Gibson reading material. For example, in the sentences:

This is his head.

This is his hand.

any novice in reading might be ready to <u>guess</u> in his early encounters

with either of the words "head" and "hand". He might use the beginning as a clue and if that failed him the tail end. The exercise forces him to take in all the elements of the word, to look at not only the front or tail of it but the filling in between. He must look carefully at that filling for each of the words has an "a" in the middle but in a different position and accompanied by a different letter.

In making such discriminations, the task is made easier in a number of ways. The number of discriminations he has to make is limited and the meanings of the sentences differ in a striking fashion. And while he is making the discriminations the structure of the sentences is kept the same. Within this same framework of simplifying the learner's task, the next problem of designing early reading material is now taken up. It is a problem concerned with how to assist the learner to discover what sort of phonetic correspondence there is between speech and its notation - and to discover how far such correspondence goes.

In the linguistic code a "phoneme" signifies a semantically functional unit. With languages that are phonemically spelled the correspondence between speech and written notation is comparatively easy to explore for an almost one-to-one relation exists between the two. Italian children, for example, when learning to read soon become aware of the alphabetical principle of reading and writing.

Because of the highly imperfect and arbitrary nature of the English spelling system, the beginner's task in learning to read English, is considerably complicated. In English there is not a

single one of the 35 phonemes of the language represented in writing with only one spelling. Some have as many as up to thirteen spellings. Further, certain letters or combinations of letters are used to spell as many as seven distinct phonemes, (Soffietti, 1955, p. 74).

With so many imperfections detracting from the correspondence of the spoken and written forms of English, it is understandable why there has been considerable doubt about teaching reading by what has been called "phonic methods". The comparative studies that have been made of different methods (Gray, 1956, pp. 101-104) have shown, however, that when "phonic methods" are used to direct attention to the correspondence of speech and its notation important contributions can be made towards the development of the total reading activity. Most reading authorities today recommend that "phonic" teaching should be combined with other procedures used in beginning reading (Russell, 1949, pp. 211-215).

There is little unanimity, however, as to when such teaching should take place or what should be introduced first and in what order. Many teachers have supported Flesch's view (1954) that the teaching of the sounds and combinations of sounds of certain letters of the alphabet should be the first step in learning to read. Most reading authorities maintain on the other hand that such teaching should be reserved for much later in the reading programme. Soffietti (1955) has maintained that the letters and combination of letters that are taught in "phonic" methods" are not based on a scientific analysis of the sound structure of English and that the selection of letters

and the methods of teaching does not help the child to master the reading, writing and spelling of his native tongue.

This indictment had been given earlier in considerable detail by Bloomfield (1942). Soffietti has extended Bloomfield's view and has suggested procedures by which he claims a linguistically functional approach can be obtained for the development of auditory and visual discriminations. He also maintains that the procedures would put in correct order of importance and emphasis the clues for word attack and recognition: first the phonetic and then the form, meaning and structural clues.

To do this he suggests that there should be choices and categorization of the reading material. Each letter used in the first phase, for example, should only have one sound value. The two-letter and three-letter words made up with these letters would be divided into groups according to the vowel letter involved; for example: pin, pan, pen, etc. Short phrases and sentences would then be composed with these types of words with a gradual introduction of commonest spelled words that would be taught as "sight" words. Throughout the programme, Soffietti suggests that the teacher should emphasize the inconsistencies of English orthography in a systematic way and with reference to "the proper phonemic, structural and semantic analysis of the English language."

Soffietti admits that the suggestions he makes are very incomplete and require clarification. He acknowledges that there are other connections between speech and its notation that should be brought into view but he maintains that is outside his concern as a

comparative linguist.

The principal purpose of comparative linguistics is, of course, the development of a more adequate system of written notation with which to represent the spoken word. By the very principle of abstraction on which the study is based, comparative linguistics has to neglect whatsoever it is not concerned to deal with. Among those things has been the meaning of what is to be read. What Soffietti's suggestions entail is that the reader should be put through a systematic course in comparing written notation with the spoken word - pure "phonics" brought up to date. Because of the highly abstract nature of such as activity, it would seem to be much more suited to graduates of a college than to children beginning reading.

Gardner's research (1950) of Long Term Results of Infant School Methods has shown that children's ability to hear and discriminate isolated speech sounds develops relatively late. There is in this research a strong argument for postponing training in word analysis. And implicit in the research is the reminder to those who design early reading material that speech and writing are both modes of dealing with things meant.

Reading authorities have long recognized that the kind of analysis that "phonic methods" entail can encourage habits of auditory and articulatory imagery that add nothing in those areas of reading which may best be silent. Hyatt (1943) attempted to assess the place of oral reading in school programmes with particular reference to the practice of phonic analysis at the early stages. She concluded

that little was gained in comprehending what was read by the stress on analysis of sounds and the practice of reading aloud. She also concluded that by emphasizing oral reading and word analysis the rate of reading was limited as well.

Hyatt's concern, however, was with what she took to be a "developed reading ability" not the initial acquirement of the symbol system. In beginning reading, speech is the channel leading to the meaning. The spoken words are forms that are largely secure and intelligible: through them comparisons can be made of one form of notation with another and one set of meanings with another set of meanings. With carefully designed reading material it would seem that there can be numerous opportunities for inviting the child to discover what phonetic correspondence there exists between speech and its notation. And opportunities can be provided as well for drawing attention to certains forms so that the reader might see how far the correspondence goes.

In the Richards-Gibson reading material, the speech through which the meanings are uttered are short sentences stating simple, picturable facts. The accompanying written notations are so arranged as to invite comparisons and discriminations. The conditions under which comparisons might most likely develop are controlled in two ways: First, the number of parts of the things to be compared are few. Secondly, the aspects in which the written notations differ from one another are few.

The exercise given in the material does not isolate visual and auditory processes as separate in the mind. The sentences when

spoken aloud are short, simple statements. Through hearing speech then, how that speech leaves its tracks on paper can be more directly studied. Illustrations are appropriate here. At the early stages, use is made of the sentences:

This is a hat and this is a hat.
This is a hand and this is a hand.
This is a hat and this is a hand.

In this sequence the number of parts of the things to be compared are few - two words, "hat" and "hand" and three letters "n", "d" and "t". Both words begin in the same way with easily discriminable letters. A phonetic correspondence exists between the spoken and written forms of the comparisons the reader is invited to make. But the words and the letters that compose them also differ in a challenging way.

These early exercises lead on to others which provide opportunities for more challenging comparisons and discriminations. There are numerous opportunities for the child to discover, to confirm and to practise the ways in which speech can correspond with its notation. Contrasts are also introduced so that the beginning reader can discover just how far the phonetical correspondence of speech and its notation goes. Thus in the sequence:

This is a room.
This is a door.

attention is directed to the double vowels and by hearing the words and seeing the words in close propinquity a comparison is invited. The

contrasts that are made here form the basis of a more challenging comparison in a later sequence:

This is the store.

This is its door.

The arrangement of the sequences - and the use of the words "comparison" and "comparing" - may seem to demand that the learner's mind has to operate on a highly abstract plane. The invitation to make comparisons is not given, however, so that there might be a conscious process of selecting a respect and varifying the sameness and difference by deliberate experiment and observation. The processes required are primarily at the perceptual level. Here there is simply a presentation before the learner of two or more things in close propinquity so that each may define itself more thoroughly through its difference from the others.

These are processes of discriminating that are still little understood. But they are processes that are known to exist and are considered to be fundamental in all learning (Cassell, 1954). They are the ways by which sense objects in learning, however elementary, are discriminated, ordered and mastered.

So far in this discussion, attention has centred principally on ways children can be helped to perceive how speech leaves its tracks on paper. But the child has also to be helped to see how writing works. Such a task calls for an ordering study of language - of the ways by which words cooperate with each other in their contexts. A developing sequence in the reading material would seem imperative

for such a study. One sequence should prepare for what is to follow and confirm what has gone before.

Unhappily, the sequences in the majority of beginning textbooks provide little for such an ordering study. The concern of the designers of the textbooks has been primarily with the arrangement of the words in such a way that they might form a "story" that might attract the child's interest. Since the textbooks generally are used as the focal point in teaching, there is the risk incurred that the child's energies will be channeled away from an increasing and continuous study of how language works.

In the Richards - Gibson material, differences between simple sentences are deliberately displayed so that the structure common to them might be revealed. Provision is made for a pattern to reveal itself while from sentence to sentence the meaning shifts. For example, in the sentences:

This is a man.
This is his hat.
His hat is in his hand.
It is in his hand.

the learner is invited to see how the sentence varies systematically with changes in the meaning it handles. And the contrasts force attentive comparisons of the ways words cooperate with each other in their contexts. Also changes of position of single words in a simple construction are used so that the words can be seen as important parts for sentence building. Letter by letter variations between words

are designed to bring out how the elements are used in building words. The sequences are arranged so that the child may discover for himself how the letters in words and the words in sentences can return and make a stand in varying contexts handling different meanings.

To provide for this, the sentences making up the reading material are limited in vocabulary and content purposely so as to provide the learner with a widening and deepening experience of the common tools of thought - the "key" words of his language. Studies of children's speech (McArthy, 1954, pp. 530 - 532) have shown that the great bulk of their language is made up of a small number of frequently recurring words, and that there is a relatively infrequent use of the great majority of words in the total vocabulary. This has been shown to be true for the bulk of English.

What the "key" words of the language are has already been largely determined. In the reading material developed by Richards and Gibson there is included more than half of the hundred-odd words that have been listed as the "key" words in our culture (Richards, 1942 p.22). There is also a partial use of words from the Basic English Word List (Ogden, 1946). There is no necessity for that exact minute specification as a system for which Ogden created Basic English. But the principles of economy and utility that make Basic possible can be utilized in designing an introduction to learning to read. Those principles provide for words whose resourcefulness can make the first stages of learning to read surprisingly compact.

The 500 words that are used in the Richards-Gibson material can be found in the Basic English Word List. The most necessary of them - the structure words - are all to be found among the first 1,000 of the Thorndike-Lorge word-frequency list (1944). The great majority of the others stand high in all frequency lists (Seashore,1947). The 500 supply more than half the words in an average page of modern general English.

But over 30% of any page of print consists of a small number of constantly recurring structure words. In designing early reading material, what would seem more important than vocabulary is how to encourage command of structure and its relation to sense. It is well to note that the words in the pre-literate's speech have become more exact through use and always within some structural framework. E. Dewey (1935) has pointed out that the first words have the force of a phrase or sentence and that as increasing control is gained of the ways important words work together so, in turn, does the child's speech show a progressive increase.

Richards and Gibson do not make a rote presentation of the "key" words of the language before the learner; instead the words are so arranged that the learner has to study how they work in their contexts. Because of the utility of the words that are being studied, their number need not be great and their resourcefulness can be endlessly explored. One of the words of our language most requiring study is the verb-to-be. It is one of the most resourceful and also most irregular verbs in the language. Throughout the Richards-Gibson reading material this verb is studied as it gradually develops to

include singular and plural forms and three simple tenses.

All this may seem too "difficult" a task to set the beginning reader. There are various ways in which a reading task can be difficult, however. When the child is given vocabulary which is an instrument rather than a load, where a range of sentence structures are given that may be operated with safety and where opportunities for failure and bewilderment are limited, then it would seem possible that the child could take up a "difficult" task. Biber, Murphy et. al. (1942) have shown that one of the most dominant interests of children beginning school is that they "want to learn to read". Their research also emphasises that primary children "are realistic", their language is factual, direct and specific. At five or six years of age their most common questions are of the "What is it?" sort.

By the careful sequencing found in the Richards-Gibson reading material there would seem to be no need for extrinsic incentives or adventitious external reinforcements. The invitation to learn to read is designed so that the child might participate in an inherently exciting form of play. At every stage he is invited to study, for himself, what he is doing as he learns. The kind of study the child is asked to do attempts to encourage something of the deepest in his nature whereby he might find that work, in itself, can be enhancing and success in it the major satisfaction whatever other rewards may attach.

Since the words the child studies are the basic structural words of our language, he is encouraged to gain a mastery of the common handle, or stem, upon which other forms of English with limited and

varied ranges of utility can be mounted. There are many who consider that present reading material does not provide for such mastery.

Center (1952) claims that something is seriously wrong with the end results of reading instruction. She points out the grave risks that may be incurred through having children increase their speed in reading by using books that are too multifarious and trivial in content. She maintains that in learning to read well, time is necessary for thinking. Neatby (1953, p.145) claims that the reading habits now being promoted are merely optical and the growing mind has met no problems worthy of it nor has it learned to handle them when they come. Watt (1944, p.89) voices the fears of many persons concerned with reading instruction when he states: "the results of our systematic instruction over a period of nine years of child life during the past half-century have not been altogether satisfying; indeed, there is ground for the fear that we may be training the vast majority of our children just well enough to enable them to occupy themselves with the tawdriest reading material and yet not well enough to ensure that they will wish to enter into and enjoy their rightful intellectual and spiritual heritage or even that they will be able to withstand the word-magic of the advertiser and the propagandist.

This quotation emphasises the serious, indeed even terrifying, obligations that are imposed on those concerned with teaching young children to read. With so little time available to meet this responsibility, it would seem imperative that the content of all reading to which classroom time is given should be, at all stages, as "difficult" as the reader can handle.

Professor Whitehead (1932, p.7) has emphasised this point much more forcibly: "If it were easy, the book should be burned; for it cannot be educational".

After making a critical examination of the content and the ordering of the reading material in beginners' textbooks, Skinner (1948, p.181) concluded that "the attempt to teach people how to think seems nowadays to have been abandoned". In this view Skinner suggests that there is an intimate relationship between people thinking well and the kind of thinking they have been encouraged to do in their reading. Thorndike (1917) maintained, after making a study of mistakes in paragraph reading, that reading and reasoning were of the same process. Reading, in Thorndike's view, should be a process of continuous evaluation of the relative importance and interrelation between words, phrases and sentences as one reads. He also suggests that the principal task of the teacher of beginning readers is to help pupils to learn to reason through reading. More recently, Betts (1946) has asserted that, in a psychological sense, reading is "nothing other" than a thinking process. He maintains that too little attention is given at the early stages to encourage the child to do thoughtful reading.

In research on beginning reading, most attention has so far centred on the problem of how the so-called "mechanics" of reading can be developed. According to Scott (1954) there is still no unanimity as to precisely what sort of thinking the reading process involves. There is no doubt, however, that thinking ability shows a more or less

steady improvement with age and "especially with the acquisition of language" (Munn, 1955, Chap.11)

Piaget (1930) and Werner (1948, Chaps. 10 and 11) have claimed that the child's thinking is different from adults. Piaget emphasises the absence of logical deductions and consistent explanations in the thinking of young children. Frequently a child's explanations are magical, like those which primitive peoples often give to natural events. Both Piaget and Werner have pointed out what they call the "syncretic character" of children's thinking, in which analysis hased upon objective relations, as conceived by adults, plays little or no part. According to these investigators, in the child's mind everything is connected with everything else but not in the same way as adults conceive of time, space or causes.

Children's explanations may, of course, be inadequate when compared with the standard of a thoughtful adult but it would seem erroneous to suppose that their thought processes are essentially different from those of adults. The "inadequacies" of the explanations may be due to a lack of special experience, to an undeveloped capacity by which to express the explanation or to the language in which the problem is presented.

Investigations by Hazlitt (1930) and Oakes (1946) have demonstrated that these causal factors can result in adults giving "childish" explanations. Hazlitt maintains that Piaget's picture of striking differences between adult and "childish" thinking is due to an overvaluation of verbal expression as a measure of thinking and an exaggerated view of the logicality of adult thought.

Bartlett (1950) submits that in thinking evidence is given and the essential character of the process is to move beyond this evidence but in line with it, to something for which, so far, no exact or complete perceptual basis is claimed. Bartlett suggests that thinking can be considered as "a high level skill", as one in which"gaps" are filled up in accord with specific evidence provided. In his researches on thinking, Bruner (1956) designs his experiments to take into account what he calls "man's extraordinary discriminative capacities" and his limited attention and memory. The results of his studies have led him to conclude that much of thinking consists precisely of a search for cues that will provide a good basis for inference in advance of having to deal ultimately with objects or events.

Most present day studies of the thinking processes also stress the importance of what is called "transfer". When a subject "sees into" the fundamental relations of a problem, or has "insight", transfer seems to be a major contributing condition. McGeoch (1942, p.445) states: "transfer is a basic factor in originality, the original and creative person having, among other things, unusual sensitivity to the applicability of the already known to a new problem situation. Perceiving, at whatever level, is probably never free of its influence and there is no psychological event which is not a function of it".

The ways Bartlett, Bruner and McGeoch conceive of characteristics of thinking bear a close similarity to the kinds of thinking Richards and Gibson attempt to encourage through the control, design and

arrangement of their reading material. Richards has stated (1929, p.1) that a book should be considered as "an instrument to think with". The kind of exercises that are presented in the reading material are, in themselves, "instruments" for the child to think with that seek to encourage and renew in him habits of thoughtful reading that could prepare for all later reading.

The reading material attempts to provide a strictly graded, self-explanatory means to progress into the language. The design is so arranged that the child's progress into reading, his progress into language and his growth of understanding in his subject may be one undertaking. An "instrument to think with" is presented so that from the first stages, reading might be made instructive and later advances may be kept in order whatever their arrangement or sequence. These advances are necessary, not only for reading but for elementary science, elementary history and geography, elementary ethics, politics, psychology and sociology and elementary humanities.

The phenomenal successes in our time of scientific endeavours have demonstrated that the successes were not accomplished by methods left to chance but by developing and applying increasingly more adequate methods. The invitation for children to learn to read as designed by Richards and Gibson would seem to be, at once, more scientifically and more humanly conceived. A cross-over has been attempted so that by learning from science, the humanities may be made more accumulative too.

To date, there have been no results published of research on beginning reading in which the Richards-Gibson reading material was

used. The over-all view of beginning reading that has been attempted in this section argues for the applicability of the reading material for a programme of exploration and reform in this field. It is primarily as an instrument for exploration that the reading material has been used in the research reported in this thesis. How it was used in the research and how the investigations were designed to meet the specific purposes of the enquiry is taken up in the next section.

SECTION III

DESIGN OF THE RESEARCH

The research was designed to seek a further understanding of the ways by which young children, working together, become aware of the meanings of written symbols.

At the outset of such an endeavour, there can be no pretence that how children become aware of the meanings of written symbols and how they aid or hinder each other in their learning can be fully explained. In this study - as with most every other study of this sort - the research has had to start from, as well as work towards, much that is unintelligible. Thus, to seek an understanding of the ways children become aware of the meanings of written symbols must have regard for the immensely more difficult problem of how they arrive at the meanings of spoken words.

As pointed out in the preceding section, the numerous studies of children's pre-school language development have shown that the children were engaged in kinds of discriminating which demanded of them more than was always understood. A more or less developed understanding of the spoken language has had to be assumed at the time point in the children's lives at which this study was centred, but it is recognized that many fundamental facts are unexplained.

A starting point for the research was suggested, however, at the end of the discussion of how learning to read could be made easier and more instructive. With the reading material prepared by Richards and Gibson it has been possible to take up the task of exploring more intensively how children of the same chronological age, learn from one another and aid each other in their learning.

For such a study, certain methodological conditions seemed paramount. It was considered essential that observations should be made over an extended period of time. The reading material had to be such as would permit detailed observation to be made of how children were becoming aware of the meanings of written symbols. The situation in which the children were presented with the reading material had to be carefully controlled so that detailed observations could be made of the ways the children were learning from one another and were aiding each other in their learning. Finally the study had to be primarily "clinical" in character, but would also rely on experimental testing in which comparisons could be examined statistically. Each of these conditions will now be considered as they impinged on the design of the research.

The research was conceived as an intensive study of children taking first steps in learning to read. Each child or group of children was seen at least sixteen times during the course of the major study. Further, the period of time elapsing between the beginning of the major investigation and its end extended over eighteen weeks of the child's school year. The research was not confined only to the study of the attainment by the children of certain scores on certain material but included as its primary data accumulative records of the subjects' increasing growth in learning to read.

Such an intensive study attempted to avoid certain crucial omissions that are considered to characterize much of present day reading research. Cronbach (1950) has contended that a good deal of reading research

has led to false or inadequate conclusions largely because too great a reliance was placed on sheerly empirical generalizations. Cronbach has stressed the need for greater emphasis on intensive studies in which a better understanding of the learner and how he learns should be sought rather than studies that yield only isolated facts about scores. Also Scott (1954) has maintained that since the central importance of motivation in learning is generally accepted "it would appear that the personality dynamics of the learner, particularly as expressed in reading situations, should be the focus of effort".

Young children of five years of age were the focus of attention in the research and they were observed as they learned to read over a period of time. The conditions for observing and examining many of the ways they became aware of the meanings of written symbols were made possible through the use of the Richards - Gibson reading material.

In Section II the applicability of the material as a principle of procedure in making beginning reading easier and more instructive was pointed out. During ten occasions in the major investigation small groups of children were presented with the reading material. As they read aloud, detailed observations were made of their successes and failures. If the task set for the learner was easier and more instructive for them, so, in turn, was the task of observing also made easier and more illuminating for the observer. The simplicity of the work the children were asked to do allowed for intensive study of a limited number of vital components of learning to read. The number of different items which had to be discriminated by the children in the configuration they interpreted was limited. A principle of parsimony, analogous to a

principle observed in all scientific explanation, characterized the reading material. Illustrations of this principle were found throughout the reading material (given in Appendix I). The number of different words which took part in forming the beginning sentences was few. In addition there was a limited number of different letters making up the words. At the first stages only seven letters: a, h, i, m, n, s and t made up the words of which the first sentences were composed. The discriminability of the letters was also controlled. Confusable letters were introduced singly and their rivals were postponed. The children were thus set a task of making discriminations with a set of symbols more comprehensible and less liable to confusion than if they had been asked to tackle combinations of the whole alphabet from the start. With such a task presented to the learners, it was possible to observe, in sequences of gradually increasing complexity, how the children were increasing their capacities to discriminate these symbols in various combinations.

The letters used, however, allowed for an ample supply of words for use in short sentences and these were words of a highly picturable kind. The design of the reading material not only provided opportunities to study the children's growth in discriminating letters and words but also to study something of their growth in perceiving, increasingly and continually, the words interanimation - how the children were attaining to a command of structure and its relations to sense. Through the reading material the children were encouraged to study the structure common to a group of simple sentences. They were invited in their reading to see a pattern emerge while from sentence to sentence the

meaning shifted. Changes of single words in a simple construction were used to demonstrate to the learner how words are used in sentence building and letter by letter variations between words pointed out the manipulatory possibilities of these elements.

The conditions for making detailed observations as the child took up this study of the interanimation of words were most suitable. The words used in the material and the ways they were used provided for a continual relating of sense objects and physical operations with spoken language and with the written symbols for words. While the child was studying how letters cooperated in words and words cooperated in sentences he was given security through hearing meanings uttered in speech stating simple, picturable facts. Further, the accompanying written notation was so arranged as to invite comparisons and discriminations. While the children were undertaking the task of making these comparisons and discriminations, the structural framework was kept the same within a sequence. Such condition limited and intensified the range where observations were made. Prolonged attention could be focused at crucial turning points in the child's discriminating.

The reading material also served as the focal points for examining how the children were learning from each other and were also aiding each other in their learning. During each meeting, on ten occasions, each child in a small group of six children took "turns" at reading sentences of the reading material aloud. Each sentence of a sequence represented a unit of meaning corresponding to a unit of speech. As the child read the sentence orally, the spoken words he used related to sense with which the other children in the group might be familiar.

The other children read the sentence silently and could compare their reading with what they heard being read. Such a situation invited them not only to compare but also to suggest ways in which they thought the oral reading could be modified. Since a sentence was organically connected with the preceding sentences and with the ones to follow each child was linked in a common task. What one child did in his oral reading could be closely related to what he had heard his fellows doing. Each child was thus given an opportunity to study his own performance as well as the performances of the other children in his group and he was continually invited to act as an active helper and critic on a common task. The words used in the sentences were such as to yield meaning at different levels. The brighter children were not reading more in their group but they were given the opportunity to read better. Numerous occasions were presented for them to discover ways of discriminating the details of letters, words and structures. And the ordering of the sequences gave them an opportunity to show what they had done in their discriminating and to demonstrate it to the rest of the groups.

But occasions were provided as well for each reader to have success in his reading. Each learner was continually invited to test and to confirm what he was doing. Letters in words and words in sentences continually returned to make up other words and other sentences. Each child in the group was thus able to make his own particular contribution to the group activity. And the gradually increasing complexity of the sequences assured that many of their contributions would be successful. Finally, the reading material was not presented in textbooks. Each sequence of sentences was presented to the readers on large sheets of

paper. Such a presentation provided a focal point that limited and gave salience to the area at which the entire group had to give their attention.

For the purpose of recording the observations during the occasions in which the children were reading, the sentences making up each set of sequences in the reading material were typed on foolscap-sized sheets of paper. Spaces were left between each sentence and on either side of the sequences. Multigraph copies of these sheets were used during the major investigation.

The technique of recording successes and failures in the oral reading was directly based on that used by a number of reading investigators (McCullough, Strang and Traxter, 1946, Chap. 5). A success in reading was noted primarily by the absence of any markings on the sentence which the child had been heard reading. The errors he made received detailed recording. The technique used permitted a rapid short-hand for indicating where errors occurred and the particular kinds of errors that were made.

All the recordings were not "errors" in the sense that there had been complete failure to apprehend the word or words. Hesitations were marked by underlining the place - or places - in the sentence where the child stopped and was making no sound. Usually this stopping was followed by an apprehension of the word and the child continued with the rest of his reading. A double underlining followed by a number indicated a lengthy hesitation, the number indicating the approximate duration of the hesitation in seconds. A triple underlining followed by a number indicated that the child had failed to apprehend the word

and had requested help. When he made that request the total length of his hesitation was indicated by the time in seconds.

Hesitations were often followed by the child saying the word incorrectly. When this occurred, the word was underlined (singly or doubly), an oblique line was drawn through the word and the incorrect utterance was written above the line. The oblique line was also used to indicate all those errors that were largely in the form of guesses - where the child took no account of how the words were supposed to fit into the rest of the sentence. When the child recognized his error and indicated that he had done so by saying the word correctly, a check mark (✓) was used to record this success. Whether the child made the correction immediately after the error was made or during or upon completion of the rest of the sentence was recorded in short-hand in the space beside the sentence.

Words or parts of words mispronounced were marked by underlining the specific area of mispronunciation with a dotted line. Omissions were recorded by circling the items left out. Insertions were indicated by writing them in above the mark ⋌ . Substitutions of one word for another in the same sentence were recorded by drawing an arrow from the word used as a substitute to the place in the sentence where it was substituted and the word substituted for was circled. Repetitions were indicated by drawing a wavy line under the part - or parts - of the sentence repeated. For all these errors, when a child made a correction of the error on his own initiative, that correction was recorded with a check mark above the specific error and when he made that correction was recorded in short-hand in the nearest space.

Each child taking a "turn" at reading in the groups was assigned a number according to his seating arrangement. When he took his turn at reading, his number was recorded opposite the sentence he was reading. All the spontaneous "helping", the suggestions and the comments the rest of the group made were recorded verbatim in short-hand while oral reading was taking place. The number of the child and his spontaneous utterance were recorded directly at the place in the reading at which the utterance had occurred. Finally, all that the children said, their conduct and their expressed behaviour during an occasion of group reading was recorded in short-hand. The various ways of handling the data thus obtained will be detailed in the results section of the major investigation.

It is now necessary to consider how the investigations was experimentally ordered to explore how the children might be learning from one another and might also be aiding each other in their learning. The principal task of the design was how to provide for the optimum conditions for making observations and comparisons.

In the design of the investigation much was borrowed from the research outcomes of many small group studies. According to Argyle (1952) and Roseborough (1953) in their evaluations of small group studies, the methodological requirements for such studies have been sufficiently established now to warrant an application of the methodology in various kinds of exploration.

Many studies have now demonstrated the necessity of clearly specifying the task the group are set. Bales and Stoodtbeck (1951), for example, found that the sequence of events in problem-solving in a

group varied in character with the type of problem under consideration. And Heise and Miller (1951) have shown that the relative efficiency of a "communication pattern" depended on the kind of problem the group was trying to solve. In the investigation reported in this thesis the Richards-Gibson reading material was clearly specified as to its content, arrangement and ordering as a task to set the group.

The small group studies have also pointed out the diverse meanings that can attach to the word "group". Persons can, of course, be members, in varying degrees of membership, of many different groups. For the purpose of studying how persons in active, face-to-face communication learn from one another and aid each other in their learning, it has been shown (Lorge, 1955) that the most productive method of study is to give persons an opportunity to participate in what is, to them, largely a new group stiuation. When the task they are set is well chosen, so that what each person does represents part of a common endeavour, then the probability of a "group" developing is greatly increased. Further, by setting a number of persons to work actively together on something with which they have not worked together on before, the stages and sequences of their development as a group can be observed.

In the major investigation reported, the children making up the "groups" were chosen at random from the classroom. Sociometric studies (Jennings, 1954) have shown that the children in the classroom could have been members of many different groups, for many different purposes already. A random selection of the children seemed most advisable to allow for children to be placed together in a situation in which they might develop together as a <u>new</u> group.

The number of children making up the group had also to be considered.

Smith's experiments (1951) showed that the efficiency of various sized groups depended upon the type of problem the group was attempting to solve. In his comparison of three-person and six-person groups, he found that the smaller group was more "valuable" when the problem being undertaken lent itself to an immediate solution. On the other hand, when what the group was undertaking was sequential in character and errors had to be pointed out and ways of improving performance had to be shown, then the larger group was more effective. Too large a group, however, has been shown (Hemphill, 1953), to produce "stratification" in communication patterns. Bales, Strodtbeck and Roseborough (1951) have reported similar results and have shown that as the group size increased from three to ten persons there was an increasing difference in the amount of participation of the members. As the size of the group increased, one person tended to dominate and the participation of some of the members increasingly diminished.

For the investigation of young children learning to read it seemed advisable that the size of the group should be between three and ten. Six children in a group allowed for each member to actively participate in the task. The number was also sufficiently small to permit detailed observations of each member's efforts.

It also seemed advisable to have an equal proportion of sexes in the group. Few attempts have been made in small group studies to examine how mixed groups can influence the kind of participation that occurs. Most studies make implicit assumption about its effects by purposely studying either all male or all female groups. The classrooms from which the groups were selected for the research had, however, approximately

equal proportions of boys and girls. In studies of achievement in early reading, girls are frequently reported as making faster progress than boys (Terman and Tyler, 1954). In selecting children from the classroom, it seemed advisable that the group should be, as closely as possible, a "classroom in miniature" so that within the group the ways by which both boys and girls might learn from one another and might aid each other's learning as they worked together could be observed.

The experimental design had also to take into account the total situation in which such groups were to be studied. Learning to read, of course is, and always should be, only a part of the child's school day. In addition to reading and the beginning of the other "R's", children are offered stories, music, dance and numerous sorts of occasions for imagining and self-expression. All these activities are integrally related to the child's life at school and can have their effects on his growth in reading. Further, programmes of reading instruction can vary widely as can also the quality of teaching. A plethora of influences on the beginning reader can come from outside the school as well. In the major investigations, an attempt was made to design the research so as to control as many of the factors as possible that might have biased the observations.

The subjects for Investigation One were children who were already engaged in learning to read during their first year at school. Once a week for a period of ten weeks six children from eight classrooms met together for approximately twenty minutes and each child took a turn at reading the Richards-Gibson material aloud. What the children were asked to do was to work with reading material of a particular sort which

they had not worked with before. The task the children were set did not tempt or urge the learner into further complexity; instead, they were given an opportunity to work with material than was specifically designed to make learning to read easier and more instructive. They were also continually invited, through the material, to study what they were doing as they learned to read. Such a task was not in opposition to other learning activities with which they were engaged in their day-by-day school programme; rather, a supplement was made to their various activities and the supplement was of a very particular sort. Through regular meetings, it was possible to provide opportunities for the six children to develop as a group that could be different to other groups to which they might have belonged in their classrooms. The sort of task they were set also invited them to explore, to organize and to order their growth in learning to read. How they did that while working in active association with one another was the primary focus of the observations.

There are, of course, wide individual variations in how children learn to read and numerous factors can influence a child's progress - or lack of progress. Robinson (1946), for example, used eleven different categories in order to make a summary of the research on causal factors of reading failure. She examined the various researches under categories of findings in the areas: social; visual; emotional; school methods; neurological; speech and functional auditory; endocrine; auditory-accurity; general physical; dominance; and intelligence. After an exhaustive examination, she concluded: "that most of the authorities admit, on the basis of their investigations, that they still

know very little about the causal factors of reading disability" (p.232).

For the purposes of the present research, it seemed imperative that a range of groups should be studied. Accordingly the groups were selected from eight different classrooms. The children in these classrooms were sufficiently varied on a continuum of I.Q.'s and socio-economic background to permit a representative sample of groups to be selected for the investigation. These groups - referred to in the experiment as the E groups - were the experimental groups in the major investigation. In order to test how the children might be learning from one another and might also be aiding each other in their learning two control groups seemed to be required.

A number of small group studies have already shown (Roseborough, 1953, p.276) that much can be gained through comparing the learning that takes place in a group with the learning that is done by persons who do not work in the company of other learners. In the present research, six children, besides the E group, were selected from each classroom. These children were observed once a week for approximately twenty minutes on ten occasions as they read the Richards-Gibson material aloud. While they were doing this reading, there were no other children present. Their successes and failures in oral reading were recorded by using the same techniques as those used to record the oral reading in the E group. Such a control group - referred to in the experiment as the C I children - provided for comparisons that could point out more exactly the modes by which children in the E group worked together. The C I children also provided opportunities for obtaining a continuous record of oral reading of the Richards-Gibson material by individual readers. This was

particularly valuable since the majority of the reading done in the E group, by any child, was of a silent kind.

Consideration in the design of the research, had also to be given to the important variable of a person, other than the children's regular classroom teacher, giving attention to the children. Roethlisberger and Dickson's study (1939) emphasized the importance of this variable as it effected the productivity of factory workers. Most present day studies of groups attempt to control the variable in a number of ways. The most widely used procedure is to select a control group and to give that group similar attention to that which the experimental group receives. The particular variables being tested are not, however, introduced into the control group. At the end of the experiment, the extent of influence of the "management and the worker" effect is tested by comparing the differences between the experimental and control groups. In the present research much the same procedure was followed.

Another six children were selected from each classroom. These children met once a week for approximately twenty minutes on ten occasions. They were presented with the task of taking turns at reading material aloud that accorded closely in vocabulary and content with what they were using in their regular programme of instruction. The material, however, represented fresh reading matter for the children. The groups were given an opportunity primarily to do additional reading of the sort they were engaged in day by day. The reading material was presented to the groups in a manner similar to the E groups. As each child took a turn at reading, his successes and failures were recorded using techniques identical to the other groups. All spontaneous comments, suggestions, promptings etc., by the rest of the children were recorded verbatim. For

the purposes of recording, the content of the reading material was typed on foolscap-sized sheets, spaces being left for short-hand notations. Multigraph copies of these sheets were used to make up the cumulative group records. Not only did this group - referred to in the experiment as the C II group - provide a control to test the effects of special attention, it also provided opportunities whereby the two kinds of reading material might be compared.

So that the experimental and control groups could be compared, the number of children in the groups and the proportion of sexes were kept the same. In the present state of research on small groups, however, it was difficult to know what other dimensions to use for matching the groups. A number of methods of matching have been suggested (Argyle, 1952, p. 271) but the criteria for matching - sociometric choices, etc. - are based primarily on characteristics of groups already formed. The present research required that the experimental groups should be chosen at random so that the children might have an opportunity to work on a special sort of task with a number of children with whom they had not been grouped together before. The random selection of eight experimental groups seemed to guarantee that this situation would be provided for. The two control groups were also selected from each of eight classrooms. This number of control groups helped to overcome the problem of matching groups. The children in the three groups were also matched, however, on certain characteristics of the individual member. This matching governed how the C I children and C II groups were selected and was done to provide for greater sensitivity in making objective comparisons. The procedures used for selecting and matching the groups were based in this research on those suggested by Thouless (1951 pp. 20-25).

The selection of the children for the control groups was based on three criteria. A child selected for the control group had, first,

to have a comparable chronological age - to the nearest month - with his or her partner in the experimental group. Secondly, the child had to have a comparable score on the Goodenough Draw - A - Man test, (Goodenough, 1926). This test was used in the research primarily to assess the range of I.Q. of the sample. The Goodenough I.Q. scores also served well for selecting the control groups since they provided a means by which the ability levels of the three groups could be made approximately comparable. The third criterion on which the children were matched, was the correspondence of composite scores made on two tests concerned with certain characteristics of learning to read.

In Investigation One, all the children in the sample were tested on subtests two, three and five of the Gates Reading Readiness Test (Gates, 1942). These subtests were selected for use because of their high reliability and validity coefficients (Gates, 1939, 1940). The items on these subtests were also free of any cultural bias - an important consideration since the Gates Reading Readiness Test was developed specifically for American children. The subtests assessed how well the children could discriminate between letters and words of similar configuration and also tested how well they could name the letters of the alphabet and the numbers from 0 to 9.

Tests R 6 and R 7 of Schonell's Diagnostic Tests in Reading (Schonell, 1944) were also used. Test R 6 assessed recognition ability of words susceptible to reversals. Test R 7 was concerned with assessing the child's capacities in visually discriminating parts of words. A composite score on the five Gates and Schonell tests was obtained by

counting up all the items the children did correctly. This score was then used to match the control and experimental groups in Investigation One.

In Investigation One, selection of a child for a control group was made only when there was a close correspondence on all three criteria with another child in the experimental group. Tests of significance were made to assess the accuracy of the matching. The matching of the groups provided a starting point by which they could be compared.

The principal data for comparing came from the cumulative records of the children's oral reading. Gray (1956, p.105) has stressed that when growth in learning to read in one group seems to be better than in another, the essential question to be asked is "better for what?". He maintains that in most experiments this question has received little attention and is seldom ever raised. Throughout the "clinical" examination of the oral reading protocols the questions formed the touchstone in making evaluations of changes that were observed.

Two objective tests were also administered to the E group and C I children at the end of the ten week experiment. The first test evaluated the children's skill in responding to individual words they had worked with during the ten meetings. Each word was printed on a flash-card and was exposed before the subject for a five second interval. The oral response to the word was recorded as a pass or failure in word-recognition. All the words making up the sentences the children had worked with were used in this test.

The word-recognition test, however, only assessed how well the children could give an oral response when confronted with the printed symbols. A second test was also administered to the E groups and C I children. A copy of the test used is included as Appendix II of the

thesis. The test was devised as a means of assessing the children's power to recognize the interanimation of letters with other letters and words with other words in sentences handling different meanings.

While the children were attempting to do this, the letters were kept as parts of words and the words formed part of sentences that clearly related sense with situation. The children were also tested to see how well they had learned to compare in making their discriminations. Opportunities were also presented for the children to demonstrate how well they had learned to take account of a problem, to see what was appropriate among a number of alternatives and to leave out other things which were not appropriate there. The test was administered individually and a score was obtained by counting up the number of correct items. But more important than the score, the test also provided opportunities for studying how the children tackled the test items. Tests of significance of the mean scores of the E group and C I children were made but also certain indications of how the scores were arrived at were used in the comparisons.

In order to test whether the attention given to the groups by someone other than the classroom teacher had had effects on the learning done by the children in the three groups, all the children in the eight classrooms were tested at the end of the ten week period. The test took the form of a re-administration of the Gates and Schonell tests used to match the control groups with the experimental groups. In the preliminary tests, all the children had been tested but only 18 children in each classroom had been selected to make up the groups. The re-administration of the initial tests allowed for comparisons to be made

of those children who had received special attention during the ten week period with those who had not been given the opportunity to do oral reading for the experimenter. Further, the tests on the two occasions served to point out similarities and differences between experimental and control groups.

One final over-all evaluation was made of the beginning readers in the eight classrooms. The hypothesis was tested that the sort of activity the children were engaged in during the experiment would have an effect on the ways in which they ordered their speech and their writing. The hypothesis arose directly from reports of changes that have been effected in children's speech and writing through special attention that has been given to them in remedial reading programmes (Betts, 1948; Hildreth, 1948).

In order to test the hypothesis, it was necessary to provide for some situation in which the children could indicate something of their mastery of speech and writing. Dale (1931) has stressed that before the child can be said to have mastered a word or that he "knows" a word, he must have demonstrated that he is able to use it, to understand it in the speech of others and to discriminate increasingly the many different shades of meaning. In order to examine the child's speech and writing it seemed imperative that the situation should be the same on two occasions when his utterances and writing were collected and that he should be in no doubt as to what he was being asked to talk and write about. A number of studies of children's drawings provided a clue for the kind of test to be used. Buhler (1930) has pointed out

that children draw what they "know" rather than what they see. In testing the hypothesis in this research, the children were asked to make a drawing of their classroom at the beginning and at the end of the experimental time period. After they had finished their drawings, they were asked to write down something about their drawings. Each child was also asked individually to tell what he had put into his or her drawings. The oral descriptions were recorded verbatim and were related directly to the part of the drawing the child was describing. At the conclusion of the experiment the descriptions the children had made and what they had written were analysed. How the various analyses were made will be detailed in the results section of each investigation.

Throughout the research, extensive use was made of the "t" test to compare differences between means for all small samples. In the statistical method employed, the standard errors of the sample means were not calculated separately and then combined to get the standard error of the difference; but both samples were considered together and t was obtained by the formula:

$$t = \frac{M_1 - M_2}{\sqrt{\left(\frac{\Sigma x^2_1 + \Sigma x^2_2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

where M_1 and M_2 were the sample means, N_1 and N_2 the number of cases in each sample and X_1 and X_2 the deviation of individual scores from the means of their respective samples. This method was adopted from R.A.L. Fisher's suggestion (1944) and required that the value of t be looked up in Fisher's tables of t opposite $n = N_1 + N_2 - 2$. The criterion for rejection of null hypotheses was the 5 per cent level of confidence.

Since the use of t is based on the assumption that the two samples were drawn from populations having the same variance, tests of homogeneity of variance were made before the t test was used. For this purpose, the F test was employed. The sum of squares within the first sample was divided by $n_1 - 1$, the sum of squares within the second sample was divided by $n_2 - 1$ and the ratio between these two variances was then calculated to obtain F. This value, in turn, was referred to a Table of F (Edwards, 1946, pp. 334 - 335) in order to test what value of F was required in order to reject the hypothesis of homogeneity of variance.

Certain phases of the research required comparisons of scores in two test occasions. In order to test if the difference between the means of the initial and final tests was significant, the difference in scores of each child was obtained by subtracting the first score from the second. The mean difference was then found by use of the formula:

$$Md = \frac{\Sigma d}{N}$$

This mean difference was then subtracted from the differences, the values were squared and summed to give $\Sigma(d - Md)^2$. The t value was then computed using the formula:

$$t = \frac{Md}{\sqrt{\frac{\Sigma (d - Md)^2}{N \ (N - 1)}}}$$

In looking up the probability value of t in this case, the row corresponding to n = N - 1 was used.

When groups showed significant differences between the initial and final tests, comparisons were made of the mean gains of the groups. Since the members of the groups compared in the research were paired, the differences in gain, or loss, was computed for each pair of subjects. The standard deviation of this distribution was then calculated and the resultant value was divided by the square root of N - 1, where N equalled the number of pairs. This procedure for finding the standard error of the mean difference of gains thus incorporated the formula:

$$\sigma_{m_{d_g}} = \frac{\sigma_{d_g}}{\sqrt{N - 1}}$$

This standard error was then used to obtain the critical ratio.

It was, of course, seldom when the members of two groups could be matched exactly on the same initial scores. Peters and Van Voorhis (1940, pp.448 - 449) suggest that differences between the pairs on the matching variable as large as 5 to 10 per cent of the range of scores are permissible as long as they are balanced between the two groups so as to keep the means approximately equal. When experimental and control groups were matched in the research, three criteria of matching were employed and before the groups were considered matched no significant differences had to be found in all three criteria.

In the major investigation, a perennial problem facing those who conduct group studies was present: how much had the person directing the groups influenced what they did? French (1950, p. 87), for example, has admitted that he was unable to obtain the same results as another investigator even though the experimental design was the same and rigorous controls were employed. Lewin, Lippitt and White (1939) have also shown that the kind of direction given can have marked effects on the groups and on their learning outcomes. Throughout Investigation One, the same person directed all the groups but this could not guarantee that all the groups had not been effected by the kind of direction given.

A small-scale experiment was used in the research to test something of the effects of the kind of direction given. In the experiment, other persons than the experimenter directed small groups of learners. The specific design of the experiment grew directly out of the results of the major investigation. Section VI of the thesis is taken up with the planning, routine and outcomes of the final experiment. At this point in the thesis attention must now be directed to Investigation One.

SECTION IV

EXPERIMENTAL PROCEDURES OF INVESTIGATION ONE

(a) Preparation of the Presentation Sheets.

To date the reading material prepared by Richards and Gibson is not contained in any textbook. They have recommended the use of filmstrips in teaching beginning reading and have prepared a programme of four main filmstrips for presenting the reading material to the learners. The content of these four filmstrips was used in the two investigations.

Certain practical difficulties precluded a direct use of filmstrips. The research required that the material be used a great number of times in many different locations. This extensive use would have its effects on the quality of the pictures projected and there was the strong possibility that the filmstrips might be scratched or otherwise worn so as to prohibit constant presentation throughout the investigation. Further, the equipment needed for projection was expensive and cumbersome and difficulties were foreseen in securing rooms with suitable electrical outlets in the different schools. Also, there was the practical problem of securing a room that could be adequately regulated for illumination so as to ensure that the picture on the screen would be seen under constant conditions. One final condition weighed against the use of filmstrips. The C II group were to read material that was not on filmstrips and it seemed essential that the reading material should be presented to the three groups in the same way.

Accordingly, the reading material on the four filmstrips was transcribed on to presentation sheets 15 inches by 11 inches in size.

The sheets were of strong, white, non-glassy paper. In order to transcribe the filmstrips, a frame of the strip was projected on to the sheet of paper so that the projected frame corresponded exactly, in rectangular size, with the presentation sheet. The sentences and drawings were then traced on to the sheets in fixed black India Ink. The size of the letters was kept uniform; capital letters and the high and low parts of other letters were all 1.7 cm. in height; other parts of letters were all 1 cm. in height. Modern print script forms of letters were used throughout.

A total of 102 presentation sheets were prepared in this way. This number represented seven less than the number of frames in the filmstrips. The frames omitted were those in which there were only lists of words. Their inclusion in the filstrips was so that a teacher using the material might have opportunities for drill. For the purposes of the research, the frames did not seem to merit inclusion as presentation sheets.

The 102 presentation sheets were prepared for the E groups and the C I children. Presentation sheets for the C II groups had also to be prepared. The material for these presentation sheets was taken from a modern series of beginning textbooks.

In order to select what series to use, a survey was made of textbooks in current use in the Infant Departments of Edinburgh Corporation schools. The survey indicated that for the schools that could be selected for the sample, the Nisbet "Janet and John" series seemed most appropriate. This series was originally developed by O'Donnell, Munro and Warwick and was copyrighted in the United States in 1949. Certain modifications

have been made for its use in the United Kingdom and it is now copyrighted throughout the world. The general design, the vocabulary used and the principles directing the progression of "stories" accorded closely with series that were currently in use in the Edinburgh Infant Departments. According to Kelly (1954), the series corresponds closely with the basic principles governing modern beginning textbook design. For the schools that could be part of the sample, the series would represent fresh reading material and would also accord closely with the regular school programme of beginning textbooks.

Four beginning textbooks of the series were used to make up the presentation sheets. These textbooks were entitled "Here We Go" - the introductory textbook - and "Janet and John", Books One, Two and Three. Each page of these textbooks had as its principal item, a large attractively coloured picture. The words below the pictures were arranged, according to the authors, to provide for "an easily - progressing yet rapid expansion of vocabulary that will quickly unfold the interest and action of many episodes and stories" (Introductory note, Janet and John, Book I).

In making up the presentation sheets for the C II groups, one presentation sheet corresponded to one page of the textbooks. The "episode" or "story" was printed on sheets of paper the same size as that used for the Richards - Gibson material. The size of the letters and the style of the letters was the same as well. It was, however, impossible to duplicate the pictures that were used in the textbooks. Each picture was cut from the textbooks and was pasted on to the

presentation sheets in a position corresponding as closely as possible to its original position relative to the words and sentences in the textbooks.

One hundred and forty-seven presentation sheets were prepared for the C II groups to read. The number of presentation sheets for both reading materials was, of course, not directly comparable because of the different content of the materials. A sufficient number of presentation sheets were prepared of both materials to provide an ample supply for the investigations.

In order to provide a convenient means for transporting and displaying the presentation sheets a special box was prepared. This measured 18 inches by 16 inches by 6 inches. A sliding wedge on one side of the box was used to adjust the angle of viewing. A clamp on the bottom of one side was used to hold a number of the presentation sheets. Two hinged plastic strips at the top of the side held the sheets in an upright position. One of the hinges held the sheet being presented, the other the next sheet to follow. The top hinge could be quickly swung away allowing the sheet to drop over and the next sheet to come into view. Such a means of presentation allowed for a minimum of time to elapse between the sheets being read.

Another task undertaken before the investigation began was the preparation of the recording sheets. As outlined in Section III, the content of both reading materials was typed on to foolscap-sized sheets of paper. Copies of these sheets were multigraphed and were stapled together to make up recording forms for the E groups, C I children and the C II groups.

It was also considered advisable to test certain of the conditions under which the reading material was to be presented and the efficacy of the recording techniques. While this was being done, observations could also be made as to whether the children would attend sufficiently in order to take "turns" at reading aloud and also whether spontaneous suggestions and "helping" would take place. A pilot study was accordingly carried out before the first investigation began.

(b) Pilot Study.

The children selected for the pilot study were three boys and three girls chosen at random from an Infant Department classroom of a fee-paying school. The children had already completed one year in the Infant School and were in their fourth school month of their second year. These children were seen either individually or in a group sixteen times during two weeks of the pilot study.

During the first week of the study, attention was directed towards hearing each child read aloud from the two kinds of reading material while no other children were present. Two sessions per day were arranged - one in the morning and the other in the afternoon. Each session lasted approximately twenty minutes. Because of special classes on Friday, no sessions were held on that day. For the first four sessions, two boys and one girl worked with the Richards-Gibson reading material and two girls and one boy worked with the Nisbet reading material. During the next four meetings the materials were exchanged for the readers.

The room provided for the pilot study was equipped with standard-sized desks and chairs for Infant School pupils. The presentation box

was set on a desk at a level approximating that of the child's eyes when seated on a chair directly before the box. Illumination for the room came from windows behind the child's desk and from overhead lights. A light meter was used to check the amount of light falling on the presentation sheets attached to the box. Lighting was kept constant within the range of 100 to 250 foot candles. This range was much above the critical level of intensity where reading is retarded (Tinker, 1945), but seemed not too bright to produce glare. Throughout the investigations, this range of illumination was used. In order to test the most suitable vertical viewing angle for the presentation sheets, the sheets were presented first at an angle of 90°.

When the child entered the room, he was asked to place his chair where he could best see what was printed on the sheets. At the first meeting the children all tended to place their chairs up very close to the presentation sheets. During the reading, they shifted their chairs back more and more from the box. When they left the room the final distance they had moved their chairs was measured and recorded. Also, during the first meeting a number of the children were inclined to squint when reading and some moved their heads to one side as if to see better.

At the second meeting, the presentation sheets were inclined to an angle of 110 degrees by means of the sliding wedge on the presentation box. As each child came to the room, he was asked again to place his chair where he could best see what was printed on the sheets. At the second meeting there was little variation as to where the children placed their chairs; an average distance of 44 inches from the centre

of the presentation sheets to the children's chair seemed to be the most favoured position for reading both kinds of material aloud. When the viewing angle was returned to 90 degress at the third meeting, deviations of as much as 24 inches occurred. On the fourth meeting when the presentation sheets were returned to a 110 degree angle, the children again placed their chairs approximately 44 inches from the sheets. Also at the 110 degree angle, the children seemed to squint less and were less inclined to move their heads to one side during the reading.

These observations suggested the advisability of keeping an approximate distance of 44 inches in placing the chairs during the major experiment. It seemed also advisable that a vertical viewing angle of 110° would be most appropriate. At this angle there seemed to be less chance of glare occurring. Most of the children placed their chairs directly in front of the presentation sheets. This was obviously the best position for viewing. In arranging the children for reading in a group it seemed advisable that the children should be seated in an arc before the presentation sheets but their positions should be altered at each new meeting as so to give each child a chance to sit directly in front of the presentation sheets.

As the children read the materials aloud, their successes and failures in reading were recorded on the printed form. It was considered advisable that the techniques for recording these successes and failures should be checked. A tape recording was made of the reading done by the children at the eight meetings. The microphone of the tape recorder was placed at the side of the presentation box and the machine was turned on just before the child entered the room. At the

end of the first week the two modes of recording were compared. The short-hand used on the recording forms seemed to correspond closely with the recorded voice of the child reading. Further, the recording form included much that could be visually observed. For example, shifting of position, pointing, looking up for assistance, etc., were included in the recording form but could not be recorded on the tape. The techniques for recording the kinds of difficulties and the places where these difficulties occurred also seemed quite adequate.

During the second week of the pilot study, it was also possible to test the efficacy of the recording techniques while the children were taking turns at reading the two kinds of material aloud. Four of the meetings were concerned with hearing the children work with the Richards-Gibson material and four meetings were concerned with hearing the children work with the Nisbet material. The time given to both reading materials was equally distributed in morning and afternoon sessions. Again a tape recording was made during these eight meetings. Comparisons were made of the two modes of recording at the end of the week.

The comparisons indicated a superiority of the tape recordings over the written records for the first three meetings. Much of what the children said took place so quickly that there was only a partial written record. During the following meetings, however, it seemed that practice had been gained in making the written records for an increasingly closer correspondence existed between the written material and the tape recordings. Closer comparisons also showed that the written records included many important observations of the behaviour of the members of the group. The written records clearly indicated, as

well, what child had spoken or offered suggestions. Great difficulty was found in distinguishing the different voices on the tape recording. The recording forms also gave a perspective for the observations; within a single sheet, patterns of participation could be seen and also changes in the oral reading as the result of what had taken place earlier. No particular value for the purpose of the research seemed to accrue from the use of a tape recorder, once sufficient practice had been gained in using the short-hand system of recording.

When the six children came to the room for the first meeting they were asked to sit down in chairs arranged in an arc before the presentation box. The most favoured position seemed to be the chair placed directly in front of the box at a distance of 44 inches from the centre of the sheet. A number of children complained that they had wished to sit there. Also there was a desire by two of the children to want to sit next to each other. During the course of the first meeting these two children were so interested in each other's company that they frequently paid no attention to what the other children were reading. These observations pointed again to the advisability of alternating the seating arrangement so that each child in the group would have a chance to sit in the favoured position and seating could also be changed at each meeting.

The children's seating position was numbered from 1 to 6 as the children faced the screen during the first meetings. On the recording sheets, when a child sitting in chair number 1 took his turn at reading, that number was written on the recording sheet next the sentence being read. During the second meeting each child moved one place to the

right; the child who was sitting in seat position number 6 at the first meeting moved to the chair formerly listed as number 1. Each child kept his same number, however, for the purposes of making the recording regardless of his position in the seating arrangement. This technique of alternating the positions seemed to work well during the remainder of the meetings in the pilot study and was adopted for use in the major investigation.

In the second week of the pilot study the children were heard reading aloud as they took "turns" at reading. They began this reading at Presentation Sheet Number 20 of the Richards-Gibson material (R.20) and at Presentation Sheet Number 48 of the Nisbet material (N.48). There seemed to be little difficulty encountered by the children in taking "turns" at reading. After the children were seated at the first meeting they were told: "I want to see how well you can read what I have printed on these sheets. Each of you will take a turn at reading out loud. When someone is reading out loud I want you to watch very carefully what he is doing. When he comes to this mark (a period or a question mark was pointed out) his turn will be finished and the next person beside him will take a turn". The child sitting in position number 1 was then asked to take a turn at reading the first sentence aloud. At the first meeting the first child stopped at the end of the sentence and the second child started to read aloud. There were a few occasions when a child read too far or could not locate when his turn was to begin but several children in the group were quick to point out that "Your turn is over" or "You read here" with a direct pointing to the place where the turn should begin. The children seemed to regard "taking turns" as a game and no

difficulties in "taking turns" were encountered during the remainder of the meetings.

From the beginning of the first meeting, there were spontaneous comments, suggestions, interruptions and pointing while the oral reading was taking place. The character of the utterances seemed to vary considerably with the kind of material being read and with the number of meetings. There seemed to be little necessity for directly encouraging the children to "help". All seemed to be actively interested in what the child was reading aloud.

At the early meetings, however, there were occasions when the child taking a turn met a difficulty and was not content to accept the suggestions offered by his partners. At these points the child who was reading was questioned by the investigator in order to help the child see where the difficulty lay. The pilot study provided many opportunites to practise the kinds of questioning needed. At all times, the child was not told the word nor was the group asked to provide the answer for the learner. The questions aimed to help the child discover for himself the source of his difficulty. All questions asked and replies made were recorded on the sheets. This practice of questioning at places where completed blocking took place appeared to work well during the pilot study and was adopted for use in the major investigation. The sporadic occasions at which such blocking occurred did not, however, seem to greatly influence the general rhythmic pattern of the group's work.

An analysis of the data obtained during the pilot study was made at the end of the two weeks. A comparison of the work done during morning and afternoon meetings indicated that there was a tendency for

more successes and fewer difficulties to occur during the morning meetings. Fatigue during the afternoon sessions seemed to be a factor that had to be taken into account in the major investigation. It seemed advisable that afternoon meetings should be approximately five minutes shorter than the morning meetings. The comparisons also stressed the importance of having an equal number of morning and afternoon meetings in order to take into account any fatigue that might be occurring in the latter part of the school day. The over-all analysis of the data indicated, however, that the general conditions for making detailed observations were sufficiently sound to warrant a beginning of Investigation One.

(c) Selection of the Classrooms.

The children in Investigation One were selected from the Infant Departments of the City of Edinburgh Corporation Schools. In selecting the classrooms for the study there was a willing and active cooperation from the Local Education Authorities. Discussions took place with a number of officials about the purpose of the investigation. It was pointed out in these discussions that the main objective was to try to understand more of the ways by which children learn to read, while working actively together. The officials stated that they were presently much concerned about reading methods in the Infant Departments and about the diverse practices of "grouping" done in the schools. They stated that they welcomed such a study and agreed to cooperate fully in arranging for it to be started.

From their confidential files the officials selected what they considered to be a representative cross-section of Infant classrooms. The cross-section included a continuum of expected mean I.Q's and

socio-economic status of the children's parents. Headmasters were contacted by the officials and permission was secured for visits to be made to the schools. The number of schools suggested by the officials as a sample and whose headmasters were willing to cooperate was fifteen - almost twice as many as could be included in the sample.

Visits were made to these schools and discussions took place about the general aims of the investigation. All the Headmasters, Infant Mistresses and classroom teachers indicated a ready willingness to cooperate. Certain practical considerations, however, weighed against the selection of some of the schools.

Overcrowding was particularly acute in two of the schools visited. So acute was the problem in one school that many of the children from the district were being transported daily to another school. In both schools there was no spare room or any spare tables or chairs that could be used for the group study. The teachers of the children in two other classrooms visited were recent graduates of training colleges and as one of them said, they were "just finding their feet in learning how to teach." Both stated that the presence of another person in their room, at this point in their teaching, might be embarrassing. Another classroom visited had children, who in the Infant Mistress' opinion, were "exceptionally bright". The children were all carefully screened and came from all over the City. Selection of this classroom could have resulted in a bias of the sample. Also, there were over fifty children in the classroom and this number seemed out of proportion to the other classrooms that could be selected. At the opposite extreme, another classroom had a number of children who were repeating their first year at school and also a number who were,

according to the teacher, "border-line cases". Special attention was being given to these children by the Infant Mistress. During each day one or more of the children were absent from the room receiving special help and the total class seldom functioned as a unit. Finally, one of the classrooms visited had unequal proportions of boys and girls. There were 26 boys and only 8 girls in this classroom. A selection of the classroom would have made an unequal proportion of boys in the sample. Further, there was an insufficient number of girls who could be selected for the experimental and control groups.

The remaining eight classrooms suggested by the education officials seemed to fulfill most of the criteria for the selection of a representative sample of children who were in their first year at school. Table I gives an analysis of the number and proportion of sexes in each of the eight classrooms.

TABLE I

NUMBER OF CHILDREN IN THE CLASSROOMS SELECTED FOR INVESTIGATION ONE

Classroom	Number of boys	Number of girls	Total
A	22	20	42
B	18	19	37
C	24	20	44
D	19	20	39
E	21	19	40
F	15	19	34
G	18	18	36
H	19	17	36
Totals	156	152	308

The total number of children in each classroom was approximately the same, the greatest difference being ten (Classroom C and Classroom F). Further the number of boys and girls in each classroom was much the same. The total number of children in each classroom was large, a condition found extensively in many present day schools. For the majority of the children, the time of selection coincided with the fifth month of their first year at school. Only eight of the children were reported as having been to nursery school.

The chronological ages of the children and other data relevant to the components of the sample were secured from the pupils' record cards. The chronological ages of the children were computed to the nearest month as of January 30th, 1955. Figure 1 shows the age distribution of children in the sample.

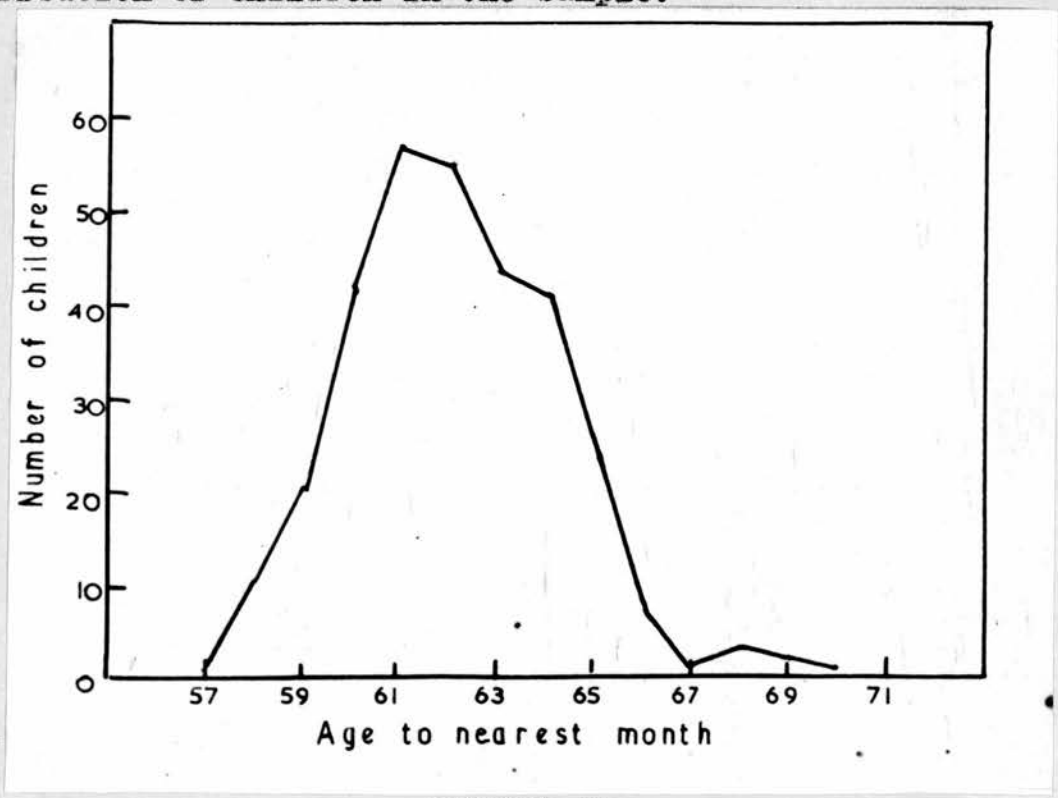


FIGURE I

AGE DISTRIBUTION OF CHILDREN IN INVESTIGATION ONE

(N = 308)

The range of chronological ages extended from 57 months to 70 months. The mean chronological age of the children was 62.04 months with a standard deviation of ± 2.2 months about the mean. The mean chronological age for the boys and the girls was 61.8 months, with a standard deviation about the mean of ± 2.3 months for the boys and ± 2.03 months for the girls.

The record cards also provided the occupational classification of the children's parents. In testing the socio-economic distribution of the sample, the Registrar - General's classification of social class was used. (Great Britain, 1951). Table II shows the occupation of the children's parents as these occupations were distributed in the five categories. Where both parents were working, the occupation that permitted the "highest" social classification was used.

TABLE II

NUMBER OF CHILDREN WHOSE PARENTS' OCCUPATIONS ACCORDED WITH THE CENSUS FIVE-FOLD SOCIAL CLASSIFICATION

Classification	General Description	Number of boys	Number of girls	Total
I	Higher professional, etc.	13	4	17
II	Professional and Intermediate	27	23	50
III	Skilled, supervisory etc.	66	94	160
IV	Semi-skilled, assistant	31	18	49
V	Unskilled, casual	19	13	32
	Totals:	156	152	308

These proportions were distributed in the eight classrooms as shown in Table III.

TABLE III

SOCIAL CLASSIFICIATION BY PARENTS' OCCUPATIONS OF CHILDREN FROM THE EIGHT CLASSROOMS SELECTED FOR INVESTIGATION ONE

Classroom	Five-Fold Social Classification					Totals
	I	II	III	IV	V	
A	6	18	18	0	0	42
B	3	9	20	4	1	37
C	4	9	25	5	1	44
D	3	7	20	7	2	39
E	0	3	26	2	9	40
F	1	2	18	10	3	34
G	0	1	22	8	5	36
H	0	1	11	13	11	36
Totals:	17	50	160	49	32	308

The distribution throughout the eight classrooms seemed to provide an adequate cross-section of children from various social classifications Further, the percentages of social classification in the sample appeared to accord with the same proportions as each occurs in the community at large. Figure 2 shows the percentages of the sample as compared with the percentage distribution of social classes of fathers of all children born alive in Scotland in 1950 (Registrar - General's Annual Report, Scotland, 1950).

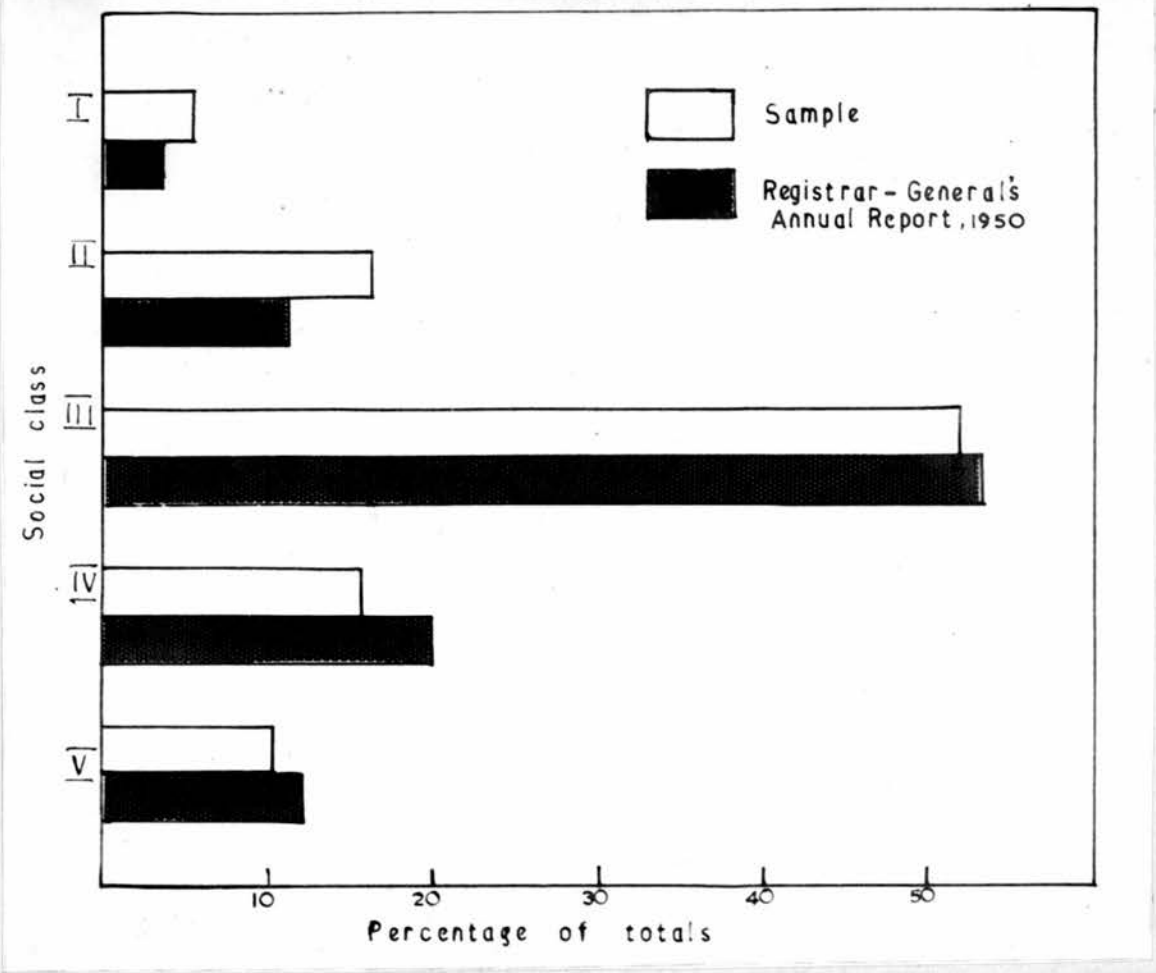


FIGURE 2

PERCENTAGE DISTRIBUTION OF SOCIAL CLASSES IN THE SAMPLE COMPARED WITH REGISTRAR-GENERAL'S ANNUAL REPORT (1950)

This comparison shows that the sample was slightly biased towards the higher social classifications but not to any extent that could hinder its general representative character.

The Local Education Authorities had records of scores made by children from the eight schools over the past eight years or group intelligence tests at age 7 +. In their description of the eight classrooms the officials included an expected mean I.Q., arrived at from the previous records. Table IV shows the expected mean I.Q. for the eight classrooms.

TABLE IV

EXPECTED MEAN I.Q. FOR THE EIGHT CLASSROOMS OF INVESTIGATION ONE

Classroom	Expected Mean I.Q.
A	115
B	105
C	103
D	102
E	100
F	95
G	93
H	89

During the first two visits to the classrooms a check was made on the approximate intellectual capacities of the children in the sample. The Goodenough Draw-A-Man Test provided a rapid means of doing this. During the first visit, the children were given sheets of paper corresponding in size to the test blanks recommended and were each provided with a soft-leaded beginner's pencil. Testing procedure was followed exactly as recommended by Goodenough (1926, pp. 85 - 87). The test required approximately 15 minutes to complete. During the second visit - one week later - the children were asked to make a second drawing, this time a picture of a woman. The test procedure was indentical to the first occasion. Because of illness, 9 of the 308 children did not make any drawing. Also 32 children made

just one drawing.

Both drawings were scored according to the point system developed by Goodenough. Computations were checked by using a separate sheet of paper for scoring points. A second scoring was done on another sheet and the two computations were compared. When the scores deviated by plus or minus five points, the drawings were scored again by another person who had used the Goodenough test extensively. This person's scoring was them compared with the two previous scorings and when a close correspondence of two scorings occurred, the higher of the two was selected. The score used in computing Goodenough I.Q's was that made on the drawing yielding the highest number of points. This procedure followed Goodenough's suggestion (p.84) that the "best" drawing should be used for obtaining the child's rating.

To obtain the Goodenough I.Q. score, the child's chronological age was taken to the nearest month. Scores were then transmuted into mental age equivalent by reference to the table given on page 39 of Goodenough's textbook. The Goodenough I.Q. score was then computed by dividing the mental age by the chronological age.

Figure 3 shows the distribution of Goodenough I.Q. scores in the sample population selected for Investigation One. The total number of children represented in this distribution is 299.

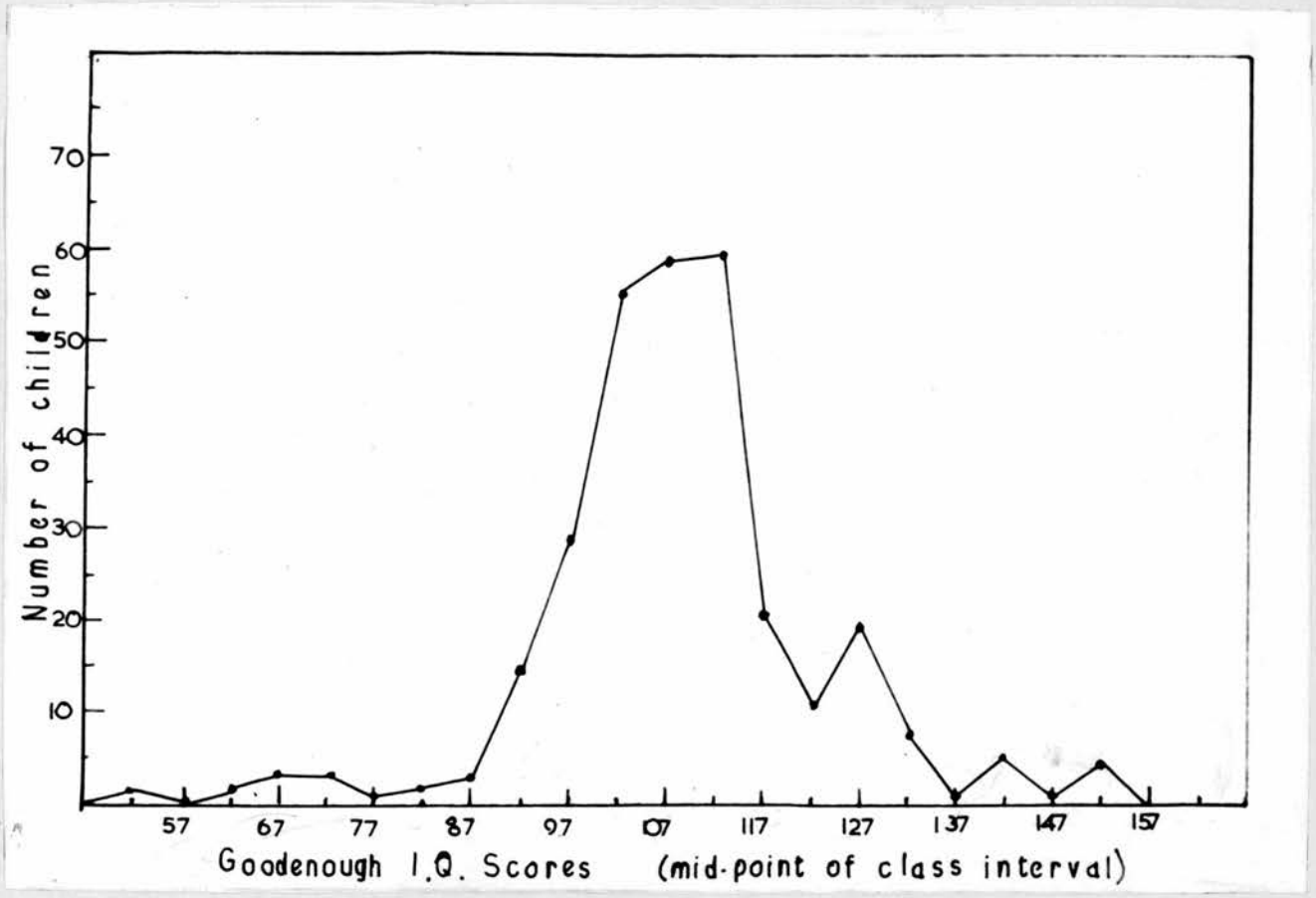


FIGURE 3

FREQUENCY DISTRIBUTION OF GOODENOUGH I.Q. SCORES OF CHILDREN IN INVESTIGATION ONE (N = 299)

The mean Goodenough I.Q. score of the sample was 108.35 with a standard deviation of ± 13.85 about the mean. The mean I.Q. score of the boys (N = 150) was 105.97 with a standard deviation of ± 15.01. For the girls (N = 149) the mean Goodenough I.Q. score was 111.58 with a standard deviation of ± 8.73.

Table V shows the means and standard deviation of the Goodenough I.Q. scores made by children in the eight classrooms.

TABLE V

MEANS AND STANDARD DEVIATIONS OF GOODENOUGH I.Q. SCORES MADE BY CHILDREN IN THE EIGHT CLASSROOMS OF INVESTIGATION ONE

Classroom	N	Mean	Standard Deviation
A	42	120.45	± 3.71
B	36	116.78	± 12.85
C	40	110.88	± 14.34
D	39	106.23	± 9.31
E	39	107.	± 9.13
F	34	105.09	± 9.55
G	35	105	± 8.35
H	34	92	± 5.06

These mean Goodenough I.Q. scores were all higher than the expected mean I.Q's predicted by the Education Authorities. Comparisons were based on different tests, however. In scoring the drawings, the children were continually given the benefit of the doubt on dubious points and the drawing yielding the highest score was used to compute the Goodenough I.Q. score. This could have accounted for the higher I.Q. scores obtained. Goodenough and Harris (1950) in their review of investigations on the test from 1928 to 1949 have reported that the I.Q. scores can be, on the average, five points higher than those made on more detailed tests of intelligence. When the Goodenough I.Q. scores of the sample are thus compared with the expected mean I.Q's quite a close correspondence exists.

There was a range of Goodenough I.Q. scores in the sample from 52 to 152 and the scores were distributed within a normal probability curve. The selection of the eight classrooms thus seemed to provide for a representative sample of children of differing intellectual capacities.

All the teachers of the children in the eight classrooms had taught in Infant Departments for at least five years. All were reported as being either excellent or good teachers by their Headmasters and Infant Mistresses. The eight teachers also showed a ready willingness to cooperate in any way during the investigation.

(d) Experimental Procedures:

In arranging for the most opportune time to visit the classrooms, the visiting schedule had to take into account "special" classes that already formed part of the weekly programme. These special classes were concerned with religious instruction, art or handicrafts and frequently a visiting teacher took the class over for instruction. During the preliminary visits of the investigation it seemed essential that the children should be seen when there was instruction in reading taking place. Through consultations with the teachers, a time-table for the visits was arranged so that there would be no conflict with the "special" classes and observations could be made at times when there was instruction in reading. The time-table permitted one visit a week to each of the classroom. The length of time was to be one-half of the school day. Half the number of visits were to be in the

morning and half in the afternoon.

The preliminary visits provided an opportunity for the children to get used to another adult in the room. Although most of the experimenter's time was spent in observing how the children were being taught, there were numerous opportunities provided for demonstrating to the children that the other adult in their room was interested in helping them to learn. Frequently, the teacher asked the experimenter to conduct the "story-time" period or some other classroom activity. At no time, however, was there any direct participation, by the experimenter, in reading lessons or other lessons on writing or arithmetic.

Observations of the lessons were made from a desk located at the rear of the room. Detailed notes were made of the lessons, particular attention being given to the questions asked and the replies which the children made. Most of the lessons were followed by some exercises that the children did as seatwork. The checking of these exercises provided opportunities for examining certain of the outcomes of the lessons and also provided an opportunity for the children to become accustomed to having their work examined by the experimenter. When the children had completed their "seatwork", they brought their work to the desk at the rear of the room. The children were asked questions about what they had done. When they had made mistakes, they were questioned to see if they might discover where the mistake was and what could be done to solve their difficulty. All difficulties were recorded as well as questions asked and replies made.

All the teachers appeared to be following a sequential programme of

lessons for teaching reading. During discussions about their programmes they all stressed that the various kinds of lessons were directed towards "developing reading skill". Each of the teachers attempted to provide a judicious balance of different lessons. Most of the teachers had worked out in detail the amount of time they intended to give to lessons on word recognition, phonics, sentence reading, drill and review for each phase of the first school year. During the first six weeks of the investigation, all the teachers volunteered to keep an account of the time given to the various activities that they considered to be facilitating the "development of reading skills". All seemed most eager to find out how their arrangement and directing of a reading programme compared with other teachers' planning. Each teacher gave a written account at the end of the six weeks. The teachers were not told the results of the comparisons until the end of the investigation, however.

During the third and fourth visits to the classrooms, subtests two, three and five of the Gates Reading Readiness Test and Tests R 6 and R 7 of Schonell's Diagnostic Tests in Reading were administered. Each child was tested individually. The Gates Test was designed for use primarily as a group test but, as suggested by the author, could also be used for individual testing. The directions in the Manual accompanying the test were followed closely, modifications being made only to suit the individual testing situation. The Schonell tests were administered exactly as recommended by the author. As each child did the various test items, records were made of all utterances and behaviour evinced by the child.

Several children were absent on the days the tests were administered. When children were absent on both the third and fourth visits, time was given to testing these children during the fifth and sixth visits. Only 6 children out of the 308 in the sample were not tested during the four visits.

During the fifth and sixth visits to the classrooms, the children were also given an opportunity to make a drawing of their classroom, to write down what they could about their drawings and to describe their drawings orally.

Before the children began their drawings, sheets of white cartridge drawing paper sized 12 inches by 16 inches were placed on the desk. A box of primary grade crayons was also placed on the desks. The crayons were the colours: red, green, blue, black, yellow and orange. The children were then told: "I want you to make a drawing of your classroom for me. Look around the room now and see what you would like to put in your drawing". After the children had taken a look around the room they were told: "Now work as quickly as you can on your drawing".

The children in the eight classrooms seemed to delight in making the drawings. All made some attempt to represent something in the room. As the drawings developed, there was a tendency for the children to want to show their drawings and to talk about them. At these points the children were told: "Please do not tell me now what you have put in your drawings. When you are finished you can come to the back of the room and tell me all about it".

The majority of children spent approximately twenty minutes

making their drawing. When the majority seemed to have finished, all the children were asked to take out their pencils. They were then told: "Try to write down something about the drawing you have made". Most of the children attempted to do some printing on their drawings but few printed more than their name. When the majority of children stopped printing, the drawings were collected and each child's full name was recorded on the reverse side of the sheet.

Each child came to the back of the room and sat at a desk with his drawing placed before him. He was asked: "Please tell me what you put into your drawing". All the children seemed quite eager to do this. When the child stopped speaking he was told: "Look at your drawing again and see if there is anything more you want to tell me". After he had indicated that he had told as much as he wanted to, the child was thanked and sent back to his seat. All that the child had said during the "interview" was recorded verbatim in shorthand. Numbers were placed on parts of the drawings as they corresponded with the child's utterances.

Only about half the children were heard describing their drawings on the same day the drawings were made. At the conclusion of the fifth visit the children were thanked for making the drawings and a promise was given to the children that next week the rest would have a chance to tell what they put in their drawings. The recordings were completed in the sixth week. Also during this visit, 4 of the 5 children who had been absent during the fifth visit had a chance to make a drawing and to tell what they had put into their drawings.

The next phase of the investigation entailed a selection of children from the eight classrooms who were to take part in the controlled experiment. The experimental groups (E groups) were

selected at random from the classroom by selecting the first, fifth and ninth name from the alphabetical class lists of boys and girls. For half the lists, counting started at the top and for the other half counting started from the bottom.

One of the children selected for the E group in Classroom F had to be replaced. He had a pronounced visual defect that was causing him much difficulty in his learning. Attempts has been made to correct the defect with glasses but with little beneficial effect. Special attention was being given to this boy by the teacher and the Infant Mistress and it seemed inadvisable to include him in the E group. His place was taken by the sixth boy selected from the class list.

Children for the control groups were selected by pairing the children with the E group boys and girls on three criteria. This was done by writing down the names of the children on slips of paper with their chronological ages to the nearest month, their Goodenough I.Q. score and the composite score made on the Gates and Schonell tests. Each child in the E group was paired with two other children insofar as they were approximately matched on the three criteria.

When the C I children and C II group had been selected in this way in the eight classrooms, tests of significance were made of the differences between the means of the three groups on the three criteria of matching. Table VI indicates the comparisons made.

TABLE VI

COMPARISONS OF THE EXPERIMENTAL AND CONTROL GROUPS OF INVESTIGATION ONE ON THE THREE CRITERIA USED IN MATCHING

Criteria	Means of the Three Groups			t Values of Differences between Means		
	E	C I	C II	E vs. C I	C I vs. C II	E vs. C II
Chronological Ages to nearest Month	62.13	62.83	61.98	.43	.52	.03
Goodenough I.Q. Scores	106.06	107	107.73	.35	.32	.69
Composite Scores on Gates and Schonell Tests	54.29	55.23	54.40	.35	.37	.04

Total number of children in each group compared = 48
(6 children in each group, 8 classrooms)

t - ratio probability levels:
.01 = 2.63 .05 = 1.99

These comparisons showed that on the three criteria used to match the groups, there were no significant differences in the means of the sample.

When matching the groups in each classroom, there were more matched pairs found than were needed for making up the groups. When a choice had to be made as to which children were to be selected for a control group, the names of the children who were possible choices were put into a box and the required number of names were drawn at random. The names of the children not selected were put on a supplementary list from

which children were drawn when substitutions were required for the groups.

Substitutions were only made, however, during the first stages of the experiment. After the group had met twice, it was considered inadvisable to introduce a new person into the group. During the first meeting of the E group in Classroom E, it was learned that one of the children was soon moving from the classroom. Her place was taken in the next meeting by a child whose name was on the supplementary list. A boy who had been selected as one of the C I children in Classroom H had a persistent record of illnesses and absences from school. When the experiment was to begin he was absent from school and his place was taken by another child. Another child in this same classroom participated as one of the C I children on two occasions then had to be substituted since she was moved to another school. Finally, one child participated in one meeting of the C II group in Classroom B but was obviously unwell. His place was taken by a child from the supplementary list when it was learned that the child originally selected was to undergo a serious operation and would not be returning to school for the rest of the year. No other substitutions were made during the course of the ten-week experiment.

Children in their first school year are generally most susceptible to numerous illnesses and common childhood epidemics. During the ten weeks of the experiment there was quite a remarkable small number of absences of the children in the three groups. The E groups remained quite constant in number throughout the experiment. One child in Classroom B had to miss the last meeting of his group because he contacted measles. There were 5 other sporadic absences in the E groups.

Three of the C I children missed one meeting, 4 missed two meetings and 1 child missed the last three meetings. In the C II groups, there were no children who missed more than one meeting but there were 6 sporadic absences during the ten weeks.

The E groups and C II group met together at 10 meetings during the experiment. Each child of the C I children was heard reading aloud on ten meetings as well. Five of the meetings took place in the morning of the school day and five took place in the afternoon. Each morning meeting was approximately twenty minutes in duration and afternoon meetings.were approximately fifteen minutes long. The duration of each meeting varied somewhat, however, because an attempt was made at each meeting of the E and C II groups to give each of the members an equal number of "turns" at reading aloud. After the E groups, the C II groups and the C I children had completed their meeting for the day, the experimenter met with the entire class for a short story-time period or some other Infant school activity not directly related to the learning of the three "R's".

On the days the meetings took place, the teacher arranged their teaching programme so that it consisted primarily in directing the children while they were engaged at seatwork. No formal group lessons in reading were conducted by the teachers during those days. Each child of the C I children and each of the other ten groups was taken from the classroom to a special study room. The time they came to the room, either during the morning or afternoon of the school day, was randomized during the ten meetings.

In each study room the presentation box, presentation sheet and seats were arranged in a fashion similar to that used in the pilot study.

Before each meeting began, the illumination of the presentation sheets was checked with a light meter and when necessary the illumination was altered so that it would be within the range of 160 to 250 foot candles. For the C I children, a chair was placed directly in front of the presentation box at a distance of 44 inches from the presentation sheet. For the E groups and C II groups the chairs were arranged in an arc before the presentation sheet, the chair in the centre being placed at a distance of 44 inches from the presentation sheet. During each meeting, the experimenter sat at the right of the presentation box facing the children, at a point where the presentation sheets could be changed most conveniently and where all the children could be easily seen.

The children in the E and C II groups were not assigned to any particular seating arrangement at the first meeting. They were allowed to select any one of the seating positions on the arc. The chair they selected was numbered and the number of the chair selected become the child's number on the recording forms. After the first meeting, however, the seating arrangement was changed for each new meeting, each child moved one place to the right and the child who had sat in seat number six at the first meeting moved to the opposite side of the arc. The numbers assigned to the children at the first meeting were kept the same during all the remaining meetings for the purposes of the records.

On the recording forms, a plan of the seating arrangement was drawn for each new meeting. This plan included the children's names and number as they sat facing the presentation sheets. By the beginning of the fifth meeting almost all the children had recognized how the

seating arrangement was being made for each new meeting. They took up their new positions voluntarily and pointed out when children were not in their proper places. From the fifth meeting to the end of the experiment, it was generally only necessary to check to see that each child had taken up a new seating position, or to give assistance to the group in their arrangement when one of the members was absent.

After the E group was seated at the first meeting, they were told: "I want to see how well you can read what I have printed on these sheets. Each of you will take a turn at reading out loud. When someone is reading out loud I want you to watch very carefully what he is doing. When he comes to this mark (a period was pointed out) his turn will be finished and the next person beside him will take a turn". The child sitting in position number one was then asked to take a turn at reading the first sentence aloud.

The reading material represented quite a new task for all the children and it was necessary to help the first child reading aloud. The child's attention was directed to the picture at the end of the first sentences and he was asked:"What is this?". There was an immediate reply of "a man". Each of the words in the sentence were then pointed to and spoken by the experimenter. Most of the children who were taking a first turn spontaneously read the sentence along with the experimenter or read it aloud by themselves after the experimenter had finished reading. The child in seat number two was then directed to take his turn by reading the second sentence aloud. The majority of children taking the second turn were immediately successful. Only in two of the groups was it necessary to give assistance. This was done in the same way as with the first sentence.

After the second turn was completed it was unnecessary to direct the child in position number three to take his turn. Most of the children in this position began reading aloud immediately after the second child had stopped. There were remarks in some of the groups that "It is your turn now" when a hesitation took place.

In order to give the children practice in taking turns and to accustom them to the new reading material, each child took a turn until the group had reached the end of the first sentence on the third presentation sheet (R 3.1) then each child took a turn at re-reading what he had read before. This re-reading also gave the experimenter an opportunity to gain speed in recording observations.

After the groups reached R 3.1, they proceeded on to new sentences, each child taking a turn at reading out loud. From the first occasion of reading aloud there was an increasing number of spontaneous utterances from the groups as the child reading aloud spoke the words of the sentence. Many of the children in the groups seemed most eager to point out where they thought the child had made a mistake and how they thought it could be corrected. At a point when there was a request of "Can I help?", or other indications that the children wished to give assistance, they were told: "If any of you think that you can help the boy or girl taking a turn you can speak out to help them".

Before starting the children to read new sentences at each new meeting, there was a re-reading of six sentences done in the previous meeting. This re-reading served to "warm-up" the group, to remind the children of what they were reading in the last meeting and to indicate to the children the continuity of the work they had done previously with the work they were to undertake at the present meeting. The

re-reading began generally at the sixth sentence back from where the group had stopped reading during the last meeting. When this sentence represented a part of a sequence that was directly connected with the sense of a preceding sentence, the preceding sentence was read by the experimenter, then each child took a turn at reading sentences that had been read before. When the group reached the point where they had stopped on the previous meeting there was no mention of this by the experimenter and the children took up the task of reading the new sentences all as part of a continuous sequence.

The methods of starting the reading and of helping the readers which were used in the E group as outlined above, were also used with the C I children. Since the children in this control were not in the company of other children, it was unnecessary to say anything about turns in giving the initial directions. They were directed, however, to watch their reading carefully. They were told that if they could not read some of the words they were to look back at the sentences they had already read or at the picture beside the sentence in order to find out, for themselves, what the words were. They were also told not to ask for help until they had tried to find out what the words were. Each of the C I children read to R 3.1, then they re-read the sentences from the beginning and then they moved on to new reading. Subsequent to the first meeting each child also re-read the last six sentences he had read at the previous meeting.

The methods of directing the CII groups were in principle the same as those used with the E groups. The procedures differed only insofar as different reading material was being used. Thus in starting a group at taking turns in reading out loud, it was necessary to direct the

attention of the reader to the picture. The name of the girl in the picture was spoken by the experimenter and the child said the name immediately after. The second child had also to be helped because another new name of a boy was presented in the second sheet. From then on, helping came more and more from the children in the group. The children in the C II group soon learned how to take turns. They were given practice in this by re-reading what they had previously done after they had reached the final sentence on presentation sheet number five (N 5.2). At the beginning of each new meeting, the children were also given an opportunity to take a turn at reading sentences that had been read in the previous meeting.

During each meeting, each child in both the E group and C II group was given an opportunity to take as many "turns" as each of the other children in the group. Since some children took much longer than others at their "turns" and there were considerable variations between the groups, the length of time given to each meeting varied somewhat. A minimum time of 20 minutes for a morning meeting and 15 minutes for an afternoon meeting, was, however, devoted for all ten meetings of the groups and also for each session with a C I child.

The main task of the experimenter, during each meeting with the three groups from the eight classrooms, was to make detailed records on the recording forms. It was also necessary to watch closely for the time at which the group had finished reading the sentences on a sheet so that the next sheet could be quickly brought into view. There were times during each meeting when the experimenter had, as well, to

give assistance to the child reading out loud.

Such assistance was given only when there seemed to be complete blocking on the part of the reader. If the child taking a turn at reading made a very lengthy hesitation and was refusing to accept the "help" offered by the other children, he was given assistance. Also if the C I child made a very lengthy hesitation and requested help, by a direct question or statement, he, too, was given assistance.

All hesitations were recorded during oral reading but hesitations requiring assistance were recorded in particular detail. When help was requested - or deemed advisable - the area of hesitation was recorded on the forms by a triple line and the total time elapsing between the stoppage and the time when assistance was offered was recorded in seconds. The child was then questioned to see if he might clear his difficulty through seeing more clearly for himself what the problem was. Frequently, when such questioning took place in the groups, a child, other than the reader, saw what was needed and stated how the reader's problem could be solved. The reader generally accepted this and carried on with his oral reading. With the C I children much more questioning was often required before the difficulty was overcome. Questions were directed about previous work done, about parts of sentences and words, and, more often, about the pictures that were displayed on the presentation sheets. At no time was there any direct "answer" given to the reader to solve his problem. The questioning was directed always towards helping him to solve his own difficulties in his own particular way.

At the conclusion of the ten meetings each of the members of the E

group and the C I children were tested individually.

The children were tested only on the letters, words and sentences which all had worked with during the ten meetings. Two tests were administered to the children. The first was a word-recognition test. Each word that had been studied during the ten meetings was exposed on a flash-card before the child for a five-second interval. The child was asked to say what the word was. After all the words had been exposed, those words which the children had said incorrectly were exposed a second time. Records were kept of the number of words responded to correctly. Also those words on which failure had taken place on both presentations were recorded.

The second test administered to the children is shown in Appendix II. For each subtest the child was presented with the page of the test and was requested to find the pieces of paper that fitted into the blank spaces. These pieces of paper on which were printed the letters, words or sentences that fitted into the spaces, were placed directly above the page of the test. After the child had made his selection he was asked to read what was on the page. If he wished to make changes as a result of this reading, this was permitted. Records were made of all successes and failures in filling in the blanks and in reading the sentences aloud.

All the children in the eight classrooms were also tested individually on subtests two, three and five of the Gates Reading Readiness Test and Tests R 6 and R 7 of Schonell's Diagnostic Tests in Reading. The tests were administered exactly as at the beginning of the investigation.

Finally, all the children were given an opportunity to make another drawing of their classroom, to write down something about that drawing and to describe orally what they had put into their drawings. The procedures used in this test were the same as those at the beginning of the experiment. The children seemed quite eager to make another drawing when they were told that the experimenter wished to have more than one. They also showed an enthusiasm for telling what they had drawn.

During the times at which the various tests were being administered, certain children were absent from the classrooms. An attempt was made to see these children during the next visits to the classrooms. Two children, however, one who had taken part in the E group and the other, a C I child, were absent because of measles and did not take any of the tests. Also 5 children who had completed the Gates and Schonell tests previously could not be tested again and 6 children in the sample did not complete a second drawing of their classroom.

SECTION V

RESULTS OF INVESTIGATION ONE

(a) First Phase of the Investigation.

An examination of the weekly timetable in the eight classrooms showed that the minimum time spent by any one of the teachers in helping the children to learn to read represented three-fifths of the total time given to all teaching. All the teachers had, in addition to their weekly timetable, a programme for instruction that they attempted to follow during the course of the year. A discussion of these programmes with the teachers indicated that learning to read took precedence over learning of the other "R's" and all other learning activities during the child's first year at school.

The eight teachers stated that their principal responsibility was "to teach the children to read" or, as some qualified it, at least "to provide the children with certain basic reading skill". The amount of the year's programme already "covered" by the eight teachers indicated that the childred studied in Investigation One were all actively engaged in learning to read. Learning to read, however, was not something that just happened but it was something that all the teachers were attempting to bring about in a great variety of ways.

All the teachers stated that they recognized that reading was a complex process - that it included a number of different activities which were more or less integrated together. Most seemed particularly concerned that the children should first master a fundamental activity of learning to read: how to recognize the shapes of the printed words and associate them with spoken words and their meanings. The observations to be reported of the sort of lessons taught, the questions

asked, the answers given and the immediate outcomes of the lessons indicated that this fundamental activity was a complicated process for the young child and that many of the children had the greatest difficulty in performing it.

When the teachers were questioned as to what purposes they entertained in teaching the various lessons, the most frequest reply was that the lessons aimed at developing "basic reading skills" When questioned further as to what these "basic reading skills" entailed, a diversity of views were given. The teacher in Classroom A maintained that the basic skill required was a capacity to immediately recognize the letters of the alphabet and the sounds they make. Only after the children had gained full mastery in this skill was it possible, according to this teacher, for them to "understand the meaning of words and sentences". The teacher in Classroom D presented an almost opposite view of reading skills. She maintained that in fostering reading skills, "experience comes first, labels next". She was much opposed to early teaching that emphasized "only the A.B.C's and the sounds they make". What she maintained was essential in bringing learning to read about were "experiences that would develop the child physically and socially" and through activities that were of "special interest" to them, the children could recognize that learning to read was "necessary and meaningful". The other six teachers offered views that were either similar to, or combinations of, the views of the teachers in Classrooms A and D.

The teaching that was done in the eight classrooms varied considerably, it seemed, not only because of wide variations of the capacities of the learners in each classroom, but also because the teachers entertained different views as to what should be the course of instruction, the materials read and the methods used. The textbooks used in the eight classrooms were as follows:

Classrooms A: New Star Infant Readers (Gibson);

B: Beacon Reading Series (Ginn);

C: The Radiant Way Readers (Chambers);

D: Happy Venture Readers (Oliver & Boyd);

E: New Star Infant Readers (Gibson);

F: Beacon Reading Series (Ginn);

G: Happy Venture Readers (Oliver & Boyd) and Vanguard Readers (McDougall);

H: Beacon Reading Series (Ginn)

Some of the eight teachers used the textbook - and the guide book - as a focal point about which all the various lessons were directed. Others tended to use reading from the textbook largely as a further drill to supplement reading that had been done from the blackboard or in seatwork exercises.

All the teachers included "phonic" lessons as part of their instructional programme. Five of the classroom teachers were following much the same order of presentation of letters.

The other three classrooms followed quite a different programme. The number of letters or combinations of letters that was presented also varied. Table VII shows the "phonic" lessons that had been presented to the learners up to the time Investigation One began. The order of presentation, as found in the five classrooms, is shown. The number beside the crosses under Classrooms D, G and H indicate the order of presentation of the different items in these classrooms.

TABLE VII

"PHONIC LESSONS" COMPLETED IN THE EIGHT CLASSROOMS BY THE TIME INVESTIGATION ONE WAS BEGUN

Lessons		Classrooms A	B	C	D	E	F	G	H
Sounds	s	x	x	x	x11	x	x	x7	x5
	t	x	x	x	x 6	x	x	x8	x11
	r	x	x	x		x	x	x6	
	o	x	x	x	x12	x	x	x12	x4
	a	x	x	x	x10	x	x	x1	x1
	f	x	x	x		x	x		x8
	h	x	x	x	x 8	x	x	x9	x9
	e	x	x	x	x 7	x	x	x10	x2
	m	x	x	x	x 4		x	x4	x3
	p	x	x	x	x 5		x		
	i	x	x	x	x13		x	x14	
	n	x	x	x			x	x11	x12
	b	x	x	x	x 1		x		
	c	x	x	x	x 9			x3	x7
	l	x	x	x	x 2			x2	
	k	x	x	x				x13	x10
	j	x	x	x					
	u	x	x	x					
"Helpers": sa,ma,ra,etc.		x	x	x					
Building three-letter words		x	x	x					
eg. sa-t, ma-t, etc.									
Sounds	g	x	x		x 3				x13
	w	x			x14				
	d	x	x					x5	x6
	v	x							
	x	x							
	y	x							
	z	x							

In presenting each of these items of language to the learners, the teachers devoted one lesson to each letter or combination of letters representing a component of speech. During the lessons, the teachers emphasized the sound which the letter represented, both as the letter was considered in isolation and when combined with other letters in a word. There was extensive drill during each lesson; the teachers spoke the sound signified by the letter frequently and the children imitated what they had heard. By the time Investigation One began there had been sufficient presentation to enable over 50% of the children to respond correctly when they were presented with a review of the letters that had been "taught". This percentage, however, only held when the letters were presented in isolation from other letters.

The examination of the errors made during seatwork exercises following "phonic lessons" seemed to indicate that there were multitudes of opportunities for misapprehension and confusion. The children frequently attempted to affect a correspondence between speech and its notations at places where a correspondence did not exist. When they failed to apprehend a word in their attempts "to sound it out", they seemed to be most confused as to what they were to do next. Over 90% seemed to be having great difficulty in distinguishing when a particular word could be treated phonetically and when it was, in the teachers' words, a "memory word" or "sight word".

Confusions were also numerous in discriminating between letters that possessed much the same sound, particularly when these letters occurred with combinations of a letter of similar phonemic character. The children's task also included simultaneously seeing the letter

correctly and conceiving the appropriate sound. A number of letters were responded to by giving the sound of the letter that had a similar configuration or similar "gestalt" form. The letter 'b', for example,was frequently sounded as a 'd' or as 'p' and the letter 'c' was frequently sounded as 'e'.

All the difficulties encountered by the children on the seatwork exercises seemed to stem in a large part from the language presented to them through which they were to learn to read. In their tasks, the children had often to rely on rote memory. When this failed them, they encountered difficulty and seemed at a loss to know how it could be cleared.

One of the principal difficulties the children had in their seatwork exercises was how to accurately conceive of the meanings of the words they were being asked to read. Difficulties occurred, it seemed, not because the words had no meaning for the children but because they had too many meanings. The words they worked with tended to stimulate the children to conceive of many meanings and they encountered much difficulty in distinguishing how the words could handle various meanings.

These problems seemed to stem largely from the sort of words being taught and the way they were taught. In the eight classrooms when a word was being taught, the word was directly associated with a picture that was supposed to represent the "meaning" of the word. Words - other than names - presented in this way provoked much indiscriminate guessing. For example, a picture of a boy and girl running was presented with the word 'run' printed underneath. The responses to the word included:"Dick and Dora", "go", "play", "happy", "look", "running", "going" and "run". Even those children who guessed correctly in this example later failed to apprehend the word 'run' in their

reading.

This lack of permanency in learning made up a great proportion of the observation during the lessons and the immediate outcomes. What had been recorded as successes for a child at one observation turned out to be rather paralysing failures one week later. All the children whose exercises were examined, showed that unless their difficulty had been cleared by seeing clearly why they had made a mistake and what they had to do to correct it, they were not able to handle a parellel difficulty when it came along.

Many of the children's difficulties seemed to arise through an over-concern for the elements of language. These elements were treated separately in the lessons. In coming to see letters as parts for building words, much difficulty was encountered in seeing how the letters could combine together. Most difficulties took place in those classrooms where the greatest number of "phonic" lessons had been taught. This did not seem to reflect on the quality of teaching so much as on the number of items to which the learner was subjected. The concern for word-recognition also seemed to carry over to the ways in which the children read a sentence. They tended to be concerned primarily with each word and failed frequently to see the words as co-operating together to handle particular meanings.

All the teachers recognized that the learning they attempted to bring about could not be guaranteed. During every school day they attempted to bring together, by oral reading of sentences, certain of the elements at which attention had been concentrated during particular

lessons. This seemed to aim at combining letters, words, phrases and sentences that had been separated for special study. But the special study of these parts of language did not always guarantee success in reading the sentences. Most teachers credited lack of success to an insufficient amount of drill on the letters, words, phrases and sentences studied earlier. These drills often took the form of games or exercises that attempted to provide numerous repetitions of the items to be learned. Often a "team" of children competed with other teams or a child competed with another in the games. There were also many special devices provided for the drills; for example, "walking" up a ladder of words on the blackboard, "riding" on a roundabout when each seat represented a word to be recalled, etc. Rewards for saying the letters, words, phrases or sentences correctly often took the form of a gummed star to be pasted in a book, a point for a team, permission to go home early and even a sweet.

The amount of time given to these drills represented a considerable portion of the school day. Table VIII shows the approximate percentage of time given by the teachers to drills and other reading activities during a six week period. The percentages were arrived at by an analysis of the records kept by the teachers during the first six weeks of Investigation One.

TABLE VIII

APPROXIMATE PERCENTAGES OF TIME GIVEN IN EACH CLASSROOM TO VARIOUS LEARNING TO READ ACTIVITIES

Learning to read Activities	Classroom A	B	C	D	E	F	G	H
1. "Preparatory Activities":	6	10	12	34	28	16	26	15
2. Phonic Lessons :	20	15	18	12	16	20	17	15
3. Word-Recognition Lessons:	10	10	6	8	16	14	10	12
4. Oral Reading:	25	15	22	5	10	7	11	5
5. Drill Lessons:	28	20	31	15	22	25	15	31
6. Seatwork Exercises:	11	30	11	26	8	20	21	22

These percentages are but crude approximations of how the teachers apportioned their time in seeking to bring learning to read about. The percentages do indicate, however, that drill played a dominant part in most of the teaching that was done. The records also showed that the teachers tended to conceive of learning to read as made up of a number of activities to which they gave varying degrees of stress.

By the time visits were started in the eight classrooms, divisions or grouping of the children had already been made. All the teachers had a number of children whom they considered to be "slow" learners and requiring of special attention. Each teacher had also organized her pupils into various reading groups that were heard together each day doing oral reading. The size of the groups varied considerably from classroom to classroom but each group seemed to be composed of children that the teacher considered had somewhat similar capacities for learning to read.

From the records of the various lessons observed, a tally was made of those children who had given "correct" answers during the lessons. There was a close similarity between these participants in the lessons and those children who were considered by the teacher to be the "better" readers in the classroom. These children, in turn, were also members of a group in each classroom and met once a day to do oral reading. All the children in the classrooms seemed eager to answer the teachers' questions during a lesson but there was a marked tendency for only a limited number to participate actively and successfully in answering. Often when the "slower" children were asked to answer the question, they indicated that they could not even recall what the question was.

These groups that had been formed already, tended to persist in other classroom activities. When choices had to be made for partners in a team, the "better" readers tended to select those children who were members of their oral reading group. The children who were the "slower" readers in the classroom also tended to be the children who were chosen last for the teams.

Every classroom had at least eight children who seemed to be having paralysing difficulties in learning to read. When they made mistakes in answering questions or continuous mistakes in their seatwork exercises, they appeared most reluctant to attempt any further problems. When questioned about these children, the teachers gave a number of "explanations as to why the children were having difficulties. Most frequently the teachers credited the children's lack of success to immaturity, a low I.Q., absence from school or an unfavourable home background.

So far, in the description of the outcomes of Investigation One, attention has been directed to the results of observations during the first phase of the study. What has been presented represents a compilation of an extensive number of observations during six visits to each classroom. These visits succeeded primarily in providing a picture of the sorts of situation in which the children were attempting to learn to read. It is now necessary to examine the data obtained during the ten meetings with the children in the experimental and control groups.

(b) Second Phase of the Investigation:

The first stage in the analysis of the protocols consisted of an assessment of the common characteristics of the steps the children took in becoming aware of the meanings of the written symbols which were presented to them at each of the ten meetings. The common characteristics were arrived at by studying the protocols of each child and each group for each separate meeting. As a protocol was examined, certain characteristics that seemed to be indicated were written down. When a characteristic was found in all the protocols of that meeting it was taken to be part of a step the children had taken in becoming aware of the meanings of the written symbols. When each meeting had been examined in this way, a second study of the protocols took place. Trends were assessed that pointed towards how the steps had come about and, in turn, a re-assessment of certain characteristics that had been considered part of the steps before was made.

Figure 4 indicates in diagrammatic form how the cross-sectional and longitudinal study was made of the C I children and E groups' protocols.

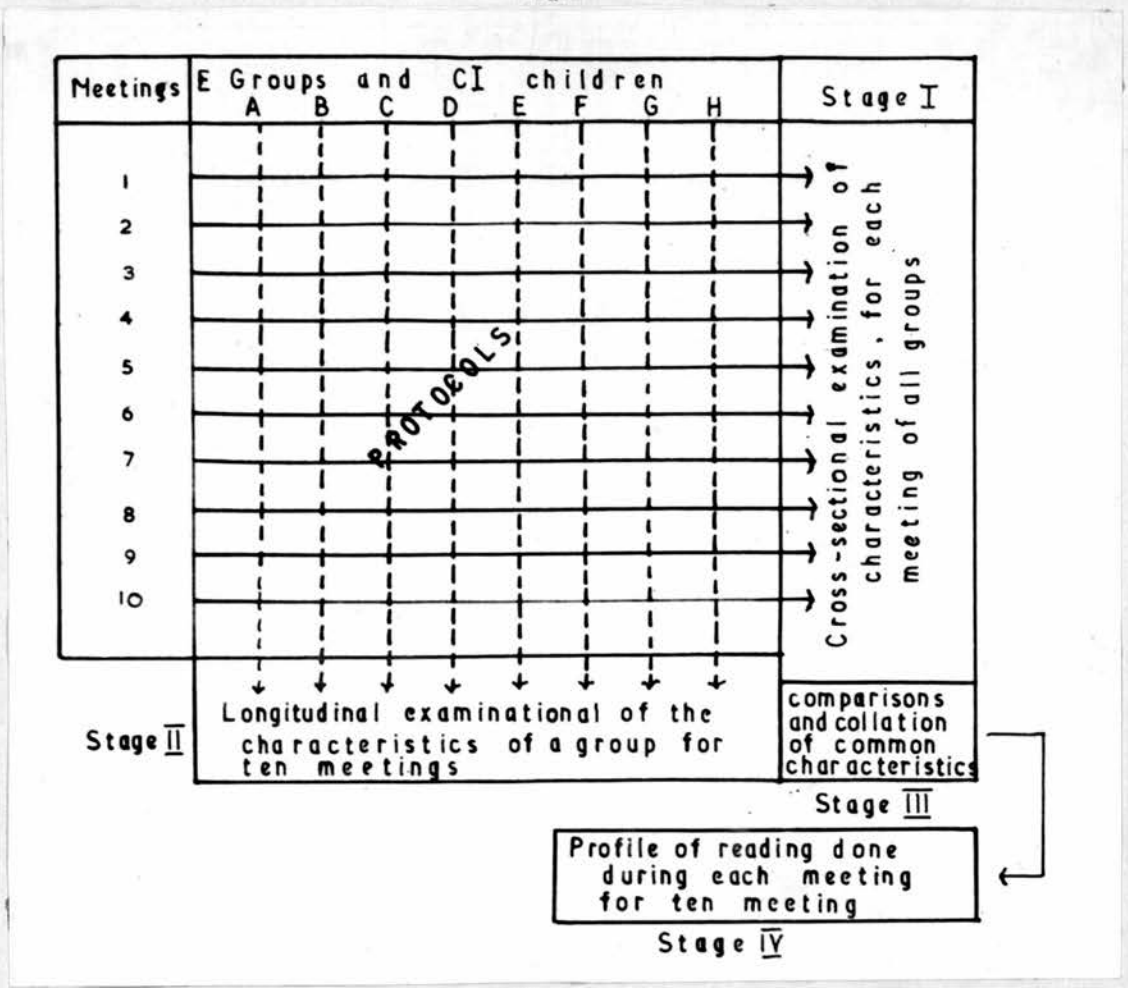


Figure 4

DIAGRAMMATIC REPRESENTATION OF HOW THE C I CHILDREN AND E GROUPS' PROTOCOLS WERE STUDIED

From this "clinical" analysis, profiles could be discerned of the C I children and E groups' learning. Each of the profiles will be described in turn. Since the C I children's protocols provided a continuous record of oral reading of each sentence of the Richards-Gibson reading material, it is with these children's profile on the ten meetings that the descriptions begin.

(i) Profiles of the C I children's reading.

Meeting No. 1

C I The C I children read to the end of the first sentence on the sixth presentation sheet during the first meeting. After they had been started on the first sentence 'This is a man' there was an immediate re-reading of the sentence. As they read the second sentence they pointed to each word in turn. The first two sentences of the second presentation sheet were read easily but it was soon obvious that the children were responding to the words and the pictures but were not seeing what they were doing as they read.

Their first difficulties occurred at the last sentence on the
2.3[1]. second presentation sheet. When they met this sentence: 'This is his hat', the children's first reaction was to look at the experimenter to see if the "answer" was to be given. When nothing was said, the children looked back at the sentence and after a prolonged hesitation read it as "This is a hat". They appeared to be satisfied with this reading since nothing had been said about the omission and substitution they had made. They read the first sentence on the third presentation sheet in the same tone of voice as they read all the preceding sentences.

Re-reading from the beginning took place at this point and all went well until the children reached 2.3 again. They were faced with a problem that had been evaded before. This time they demanded help by pointing to the word 'hat' and saying "I don't know that word".

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1. The numbers in the margins indicate the presentation sheet (R 2) and the particular sentence (.3) under consideration. The content of each presentation sheet is given in Appendix I.

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They were directed to see if they could find the word in the sentence they had read just before. Most of the children pointed to the word 'hat' in the preceding sentence but they seemed reluctant to admit that the word could appear in a different position in the sentence that was causing them difficulty. They hesitated for a long time in reading,"This hat is...." then returned to the former pattern by substituting "a" for 'his'. What seemed to be causing difficulty was the appearance of 'hat' in a new position and the introduction of a new word 'his'. The problem had baffled them because they were plunged into two difficulties at once. They reacted by sorting out one of the difficulties and omitting the other.

This way of handling difficulties characterized most of the reading during the first meeting. With the aid of the picture they read the word 'hand' correctly but encountered difficulty immediately
3.3 on the next sentence:'It is his hand'. They fitted the new word into the old pattern by reading "This" for 'It' and "a" for 'his'. This "solution" to their difficulty required some time and they seemed quite satisfied to leave the sentence as they had read it.

The first sentence on the fourth presentation sheet seemed to reassure them that they were reading correctly and that they could omit and substitute and still "read" the sentences. Again at the
4.2 second sentence they substituted "a" for 'his' and seemed content that they had read correctly. Their prolonged hesitation at the
4.3 next sentence: 'His hat is in his hand', indicated that they had no ready way of dealing with the difficulties they had avoided before. A number of children attempted to omit the sentence altogether but when they tried the next sentence and found that the pattern of

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'This is a....' was not there they looked again at the third sentence. They seemed to be unable to know what to do and a request for help was made. The children were questioned here to try to help them to see that the hat belonged to the man. After the question: "Whose hat is it?" there was an immediate return to their reading but the sentence was read: "His hat is in a hand". This tendency to avoid difficulties appeared directly on the next sentence which was
4.4 read: "This hat is in a hand". The children seemed to rely strongly on the picture for clues to the meanings of the words. As long as what they said seemed to accord with that meaning, they were quite ready to omit, insert or alter according to a very loose schematic ordering of the words.

The structure they had found to work was used as a schema in reading the sentences on the fifth presentation sheet. They met the new word 'and' here and the non-capitalized form of 'this'. They
5.1 read this sentence by separating it in two and reading: "This is a hat". "This is a hat". The next sentence was divided in two again but there was a lengthy pause after reading the first: "This is
5.2 a hand". There occurred then a first indication that the children were beginning to take account of what they were reading. A re-reading of the second sentence took place on their own and the two sentences were joined together. The appearance of 'an' in the word 'hand' seemed to provide for this but there was an immediate return to the pattern of reading previously used when the last sentence was
5.3 read. The two parts of the sentence were read separately with 'and' omitted. This seemed to stem from the comparing which the children

C I were engaged in. They pointed to the picture of the hat and the hand while reading the two words to which their attention was being drawn. They appeared to be so concerned with the two words which started the same, that their previous success with the word 'and' was not transferred. The final sentence read at the first meeting
6.1 was of the same structure as had already been seen many times and it was read with enthusiasm. Most of the children did not indicate that they wished to go on to any new sentences at this point. All seemed quite pleased to return to their classrooms.

Meeting No.2

During the second meeting the C I children read to the end of the second sentence on the tenth presentation sheet. Before new sentences were read, there was a re-reading of the last six sentences attempted at the previous meeting. The fourth presentation sheet was shown, the experimenter read the first two sentences aloud, and then asked the children to begin their reading.

Although the children had heard the experimenter read 'This is his hat' the children still seemed baffled by the word 'His'. The modes of dealing with a difficulty that had been used during the
4.3 first meeting persisted into the second. 'His hat is in his hand' was read by the children as:"This is in a hand". The word 'This' seemed to be borrowed from the preceding sentence and was forced into
4.4 a new context. It was used, as well, in the final sentence of this sheet when:'It is in his hand' was read by the children as:"This is a hand".

5.1 When the children read the first sentence on the fifth presentation sheet it was obvious that they were puzzled by the words 'and' and

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'this'. They hesitated at the word 'and', then adopted the technique of omitting that word and reading the sentence as two separate parts. Their former success with the word however, seemed
5.2 to help them during the re-reading of the second sentence. The two parts of the sentence were linked with 'and'. The children evinced an enthusiasm at their success, paused before they read the next sentence, then read it correctly. The pause seemed to be required for taking account of 'hat' and 'hand'. The pictures were again pointed to and the words were spoken quietly before the reading of the sentence began.

The children had now attained some measure of success with the word 'and' and sought to consolidate it in their reading of: 'This
6.2 is his hat and this is his hand'. They spoke the word 'and' with emphasis as well as the second 'this'. They seemed to refuse to tackle 'his' however and both these words were substituted by "a". These substitutions did not seem to matter as far as the meaning of what they were reading was concerned and they adopted the substitution
6.3 again in: 'This is his hat'. When they came to the next sentence,
6.4 the previous mode of dealing with this sentence used at 4.4 was not adopted. There were prolonged hesitations with beseeching looks for help. Two questions seemed to be all the children wanted at the moment. They were asked, "What is this?" while the experimenter pointed to the pictures of the hat in the man's hand. They answered: "the man's hat" and were then asked, "Where is the hat". Their reply of: "It is in his hand" was followed by a immediate reading of the last sentence on the sheet.

7.2 The old habits still persisted, however, for when reading:

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'This is his hand', 'his' was again substituted by "a". They did the same substitution in the next sentence and their hesitations and utterances here seemed to provide a clue as to why they were persisting in saying "a" for 'his'. They were much concerned
7.3 with discriminating the words 'hand' and 'head' and while they were doing this they seemed unable to tackle the discrimination of 'his' as well. Their first response to the word 'head' was to say "hand". After saying this they did not look up from the sentence to indicate that they had finished reading. They seemed unsatisfied with what they had said - the words looked the same but they were associated with quite different pictures. There appeared here the first positive indication of comparing one sentence with another. Many of the children re-read the second sentence aloud and emphasized the word 'hand'. When they re-read the third sentence, the phonemic clues of the beginning and the end of 'hand' seemed to provide sufficient clues for the children to recognize that the new word was 'head'. These children who attacked the new word by attempting to sound out each component part were unsuccessful. They failed to see a wholeness in the new word and when this happened their guess bore no resemblance to the phonemic structure. They seemed to reject phonemic clues and relied on the picture which which was a "face" as well as a 'head'.

8.1 These children continued to say "face" for 'head' in their reading of the next sentence. The children who had been successful, emphasised their mastery of the word. The word 'and' was again omitted in this sentence but returned in the reading of the final
8.2 sentence. As this sentence was read, there seemed to be a silent reading, preceding the oral, in which the children were discriminating

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'hat' and 'hand'. Their silent reading of 'hand' seemed again to provide a clue to encourage the children to join the two parts of the sentence together. Immediately after the sentence was read there was a spontaneous re-reading by the children in which a rhythm could be discerned. Stress came on the word 'hat', on the word 'this', and the final word 'hand'. This rhythm continued in the reading
9.1 of the next two sentences: 'This is a man' and 'This is a hat'.
9.2 The children stressed the last words in each sentence. The rhythm
9.3 faltered with the next sentence, however. There was an attempt to read it as: "This is a hat" but each word seemed to cause concern and there was an immediate request for help.

The children's difficulties with the word 'his' had been avoided by substitution for the word while they were making a discrimination between 'hand' and 'hand'. Now they encountered both the word 'It' and 'his'. To the question; "Whose head is it?" there was an immediate reply of: "It is his head". Stress was laid on the word 'his' and the children pointed to the picture. The sentence was read correctly but two successes were not present. 'It' still remained a difficulty that was soon apparent.

9.4 Those children who were successful before in recognizing the word 'head' read 9.4 correctly, the others persisted in saying the word as "face". On the next sentence: 'It is his head' the word 'It' was substituted by "This" and the substitution was again made on the
9.7 final sentence on the sheet. Also, for these children who were saying "face" for 'head', the word 'hand' became "face" as well. There was a recognition by these children however, that something was wrong. They read 9.6 as: "This is a face" and in the next sentence

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read: "This is a face" but immediately corrected themselves.

10.1 During the reading of the first sentence on the tenth presentation sheet comparing was indicated. When the children came to the second 'this' they said it twice and pointed to the capitalized letter 'T' in the first 'This'. Also they seemed to be comparing 'this' and 'his'. Before they finally said "his hat", "this hat" was tried out and rejected.

The first sentence was read attentively with the children studying and confirming for themselves what they were reading.

10.2 Prolonged hesitations and demands for help were the characteristics of the reading of the second sentence. The appearance of the word 'head' in a different position in the sentence puzzled the children. Even the picture did not seem to provide a clue that they would use by themselves. They pointed to the word 'head' and the statement was made by many: "I don't know that word". All that the children seemed to want was an assurance that the picture clue was appropriate for use, for when the picture was pointed to and the question asked: "What is this a picture of?" the children replied by reading the sentence. But they had been so concerned with the new position of the word 'head' in the structure that 'his', although read correctly in the preceding sentence, became 'a' in the reading again. Also 'head' was still 'face' to a number of the children although many seemed to be entertaining doubts about the word. A number of these children recognized that the picture now before them was different than the previous pictures and that they had to include more than a face in their description. Statements were made that: "It's a different face" and even: "That's a man's <u>head</u>". Since the second

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meeting ended with the reading of the second sentence, there was no chance at this meeting to see if these children would have read the word 'head' correctly in the other sentences on the sheet.

Meeting No.3

At this meeting the children re-read their previous reading from the fourth sentence on the ninth presentation sheet, then went on to read as far as the sixth sentence on the thirteenth sheet. During the re-reading the old habits of dealing with difficulties still persisted. Words were borrowed from the preceding sentences and used as substitutes for words not mastered. 'It' and 'his' still were not mastered and the children, who had hinted that their difficulties might be cleared during the final stage of meeting number two, still read "face" for 'head'. The word 'and' now seemed to be under more control. The children indicated that they were now beginning to compare and to test what they were reading. Before saying 'this', the word "his" was said. Also before 'hand' was said there was either an oral comparison with 'head' or a

10.2 pointing to the picture. The children recognized the word 'head' in the new position in the sentence during the re-reading but again many read "a" for 'his'.

10.3 When they took up the next sentence there was almost an immediate demand for help. This time their requests were framed as:"I don't remember this word" (pointing to 'It') rather than:"I don't know this word". When the children were questioned about the picture, there was no reply in which the word "face" was mentioned. To the question: "Whose head is this head?" there was the reply of:

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"It is his head", followed by a reading and spontaneous re-reading of the sentence causing difficulty.

10.4 The word 'hand' in a new position caused a marked hesitation but few requests for assistance. During the hesitation there were indications that the children were comparing the parallel problem that they had met at 10.2. Almost all the children said "a" for 'his' but instead of leaving the sentence like that, they repeated the last two words and read "his hand". Comparing also seemed to be taking place during reading of the next sentence but not with

10.5 complete success. "This" was substituted for 'It' but 'a' was not substituted for 'his' nor were there many hesitations in reading the word.

11.1 Although the children had said "a man's head" in their answer to a number of the questions, the possessive form of the word caused them to revert to the old pattern of reading. 'This is a man's head' was read either as: "This is a man" or "This is a head". There was only a slight hesitation before the sentence was read and no attempts were made at reading 'man's head' as a unit.

11.2 A rhythm of reading was indicated in the next sentence with stress being laid on hat and hand. There were no marked hesitations at the words 'his', 'and' or 'this'. But the first word of the

11.3 next sentence caused prolonged hesitations. The difficulty had been encountered before at 4.3 but had not been seen in this form since the last meeting. Two modes of dealing with the difficulty were indicated. Some of the children compared 'This' in the preceding sentence with 'His', substituted "This", and read the sentence. The other children asked for assistance by saying: "I don't <u>remember</u>

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this word". When it was suggested that the word told to whom the hat belonged the children quickly said "His hat". In their concern for the word 'His' other words which had seemed mastered before caused difficulty. The word 'in' was read as "is", causing considerable confusion to the readers. When this happened the children re-read spontaneously in order to rectify their error.

11.4 Hesitations occurred at the beginning of the next sentence but there were few requests for assistance and the sentence was read correctly by the majority of the children. Before the word 'It' was said, a number of the children pointed up to 'His hat' and spoke those words quietly.

Comparing seemed to be an increasing mode of dealing with difficulties. The children seemed to require the part or parts to be compared to be on the same sheet. If they could not compare a structure with another structure difficulties seemed inevitable.

12.1 'This man is in a seat' was read as: "This is a chair" and even as: "This is a man". They had met 'This hand' and 'This head' before but the words 'This man' had no parallel structure on the sheet with which comparisons could be made. The children were also much concerned with the new word 'seat'. Most were content to guess at

12.2 the word from the picture without considering the word itself. In the next sentence, the two new words were encountered in the same sentence and this seemed to cause much difficulty. A number of the children attempted to sound the word 'He' but most were unsuccessful. When the children were asked to: "Tell me where the man is?" they gave their reply by reading the sentence correctly with one exception - "chair" was said for 'seat'.

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12.3 The next sentence seemed to raise doubts for the children as to whether they were saying the word 'seat' correctly. It was not read with the rhythm that had marked the reading of other sentences in this form. The recurrence of the 's' sound in 'this' and 'is' seemed to make a number of children doubt their reading of "chair" for 'seat' in the first part of the sentence, for the last word in the sentence was read correctly as "seat". A number of other children after reading the first 'seat' as "chair" asked for help in the second occurrence of the word. They were helped by asking them to tell what another name for their chair would be.

The final sheet during this meeting was read with great interest and enthusiasm. There appeared less inclination to rely on the experimenter for help. Also the children indicated a marked increase in comparing one sentence with another and in comparing what they were reading with the picture. A number of children attempted to

13.2 read "a" for 'his' but then recognized the incongruity and said "his hair". The words 'hair', 'hand' and 'head' were compared by pointing to the words as they occurred in reading yet to be attempted or in reading that which had been already done. The pictures were also examined and compared to arrive at the new words: 'hair', 'arm' and 'ear'. The success the children had with the new vocabulary and the ease with which they now seemed to be reading, prompted most of the children to request more work and the assurance that they could read again at the next meeting did not completely satisfy them.

Meeting No. 4

During this meeting, the children indicated an increasing growth in their command of structure and its relation to sense. Words

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that had created difficulty before seemed to be coming more and more under control. In place of an avoidance of difficulty, there was an increasing tendency to try to solve the problem for themselves rather than to ask for help. Yet, what was considered as a difficulty mastered, returned again as a new difficulty in an unfamiliar disguise. Many "familiar" forms seemed unfamiliar to the children when they were seen in conjunction with new problems.

The meeting began with a re-reading of the thirteenth sheet and ended with the fifth sentence of the seventeenth sheet. The enthusiasm evinced at the end of the third meeting was quickly renewed in the re-reading and was extended to all the reading in the next sheet. There were some hesitations with the new words 'hair', 'arm' and 'ear' during the re-reading but no assistance was requested. The word 'arm' soon presented a difficulty. When the children
14.2 started to read: 'This is an arm and this is an arm', there were prolonged hesitations at the word 'an'. Those children who attempted to sound the word were successful but the solution of one problem seemed to hinder the recognition of the word 'arm'. Only a small number of the children said the word correctly. In its place they substituted "hand". And those who had not tried to sound out 'an' read the word as "a".

The difficulty avoided at 11.1 was not avoided at this meeting
15.1 when the children tackled: 'This is a man's head'. Most of the children slowed the speed with which they had been reading the preceding sentence and made a prolonged hesitation at the word 'man's'. Approximately half the children read the sentence again from the beginning and then said the word correctly. The rest of the children

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requested help. After the children were questioned: "Who is this?" A: "A man"; "What is this?" A: "A head"; "Whose head is it?" A: "A man's", the word was read correctly.

15.2 What had been read previously could also persist to influence how the children were perceiving words. Thus in the sentence: 'This is his hair', the word 'hair' was substituted by "head" with no seeming recognition on the part of the children that they had made this substitution.

15.3 At the sentence: 'These are his ears', the children met plural forms of words for the first time on the reading material. Considerable experimenting took place as the children tried out the singular forms. Many read: "This is his ear", a number of times. None of the children would go on to the next sentence, however. They seemed to recognize that what they had substituted was not correct. By a series of questions an attempt was made to show the children how they could point in words to more than one thing. The questioning succeeded in that the children read "These are" correctly but failed to show them that there was also a possessive pronoun as well in the sentence. The two new words seemed to cause the children to forget that the word 'his' was part of the sentence and they omitted the word in their reading.

15.4 The children tried to apply the word 'These' in the next sentence but quickly recognized that it would not work. The familiar form returned and although there was an attempt to put "a" before hair, to add "s" to the end of hair and to use "a" in place of 'an' the sentence was read correctly. When mistakes were made, the children made the corrections themselves. The last sentence

15.5 caused much hesitation and only half the children succeeded in reading

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it correctly.

16.1 A number of children read "mouse" for 'rat' but made an
16.2 immediate correction. No difficulties seemed to be encountered
16.3 with the word 'It' but there was complete blocking at 'its'. This was a new word for the children and in a different position and form than the word 'It'. None of the children tried to see how one form could help them to recognize the new form until they were helped. The children were questioned about the word 'It' and all spoke the word when 'It' was pointed to. They were then questioned about the picture of the rat's head and were asked: "Whose head is it?" Most of the children then read the sentence correctly.

When they met the next sentence, the problems raised in saying
16.4 "These are" overshadowed the word 'its' and that word was left out.
16.5 The children's success in reading the next sentence and the lack of qualifying words there seemed to make them oblivious to their omission.

The two words 'These are' seemed to be used in the last sheet read at the fourth meeting with growing confidence in making the words work together. The children seemed to recognize that this form was different then 'This is' and could be used to point to more than one thing. The plural form of 'hats' and 'rats' were said correctly.
17.2 An attempt was make to say "mans" for 'men' but this was quickly corrected. The phonemic correspondence of 'rat' and 'hat' seemed to cause a slight confusion but this was only momentary and the corrections were quickly made by the reader. Again the success the children had on the last sheet seemed to make them reluctant to stop reading at the end of the meeting.

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Meeting No. 5

During this meeting, the children read to the end of the sixth sentence of the twenty-second presentation sheet. Before new reading was started the sentences on the seventeenth presentation sheet were read again. During this re-reading the children indicated that they recalled the modes which they had used in successfully tackling difficulties at the previous meeting. When they met: 'These are men', they first experimented with "This is a man" then said "No!" and read the sentence correctly. When they reached the word 'men' they pointed to the picture and circled the drawings with their finger and said "men". Comparing took place of the words 'hat' and 'rat' with a testing of how the word said corresponded with the pictures.

18.1 The possessive form 'man's' still was not mastered. There was a prolonged hesitation before they started to read: 'This is a man's head', a hesitation that seemed to be due to the children reading the whole sentence silently. They then read the sentence as: "This is his head". The children seemed to recognize that there was a possessive meaning in the sentence and had consequently borrowed from the next sentence the word 'his' to use in place of a possessive form with which they were still not familiar.

The children seemed to have succeeded in recognizing how printed symbols could point and name more than one thing and, in turn, how the possessive form 'his' could be used. They read the rest of the sentences of the sheet emphasizing 'his' and the final word in the sentences. They also pointed to the pictures when saying

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"his", to the parts of the drawing and to the final words in the sentences. There were hesitations and errors made at various points in the reading but a marked tendency was indicated by the children to want to sort out the difficulty for themselves.

19.1 The now familiar pattern of: 'This is a man' and 'This is a
19.2 hat' was greeted enthusiastically by the readers even to the point
19.3 that they read the third sentence: 'The hat is his hat' as: "This hat is his hat" and did not seem to notice that a new word had been introduced. Also, their concern for the next difficulty to be tackled seemed to be responsible for saying 'This' for 'The'. Even before they finished reading: "This hat is his hat", their fingers were pointed to the picture of a shirt.

In their concern over what this picture was, the children indicated that they were relying strongly on the pictures to give them clues as to the meanings of the printed symbols. In their reading they seemed to give attention first to the pictures, then to the words making up the sentences and then the spoken words that they read aloud. When they were uncertain of the pictures they seemed reluctant to even attempt to read.

19.4 Their difficulty with this picture was that the shirt was folded so that the arms could not be seen. They stated that they did not know what the picture was and questioning about their own shirts and its parts had to take place before they seemed satisfied that the picture was of a shirt. Their attention to the word 'shirt'
19.5 seemed to lead them to again substitute "This" for 'The' in the next

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sentence. Most of the children read the last sentence: "These are shirts", correctly however.

20.1 Comparing seemed to take place with 'This' and 'That' in
20.2 the next two sentences but the comparing was unsuccessful and 'That' was substituted with "This". Comparisons were more fruitful in the next two sentences and here phonemic clues were used. The
20.3 children's reading of: "This is a hat", and their comparison of
20.4 'This' and 'That' resulted in most saying "That". Those who said the word correctly, appeared to be most enthusiastic with this discovery. Those who asked for help with the word seemed to quickly recognize the way the ending of the word 'hat' could be used as a clue for the new word. The rest of the sentences were read correctly with the words 'rat', 'That' and again 'rat' being stressed in their utterances.

Two difficulties produced complete blocking at reading: "He
21.2 is here". The word 'He' had not been mastered before at 12.2 nor had there been any further opportunities for the children to see the word and to conceive how it worked. Now in company with the new word 'here' the children seemed at a complete loss to know what to do. Extensive questioning was needed before the children said the word "He" and recognized that the sentence was indicating a spatial position 'here'. Contrasts were needed and the sentence
21.3 'That is a man' seemed to detract from the comparison the children needed to make. They read the sentence as: "This is a man", then the
21.4 next sentence: 'He is there' as: "He is here" They seemed troubled, however, and many pointed to the words 'here' and 'there'.

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21.5 Their difficulties seemed to mount in the next sentence: 'That hat is there', and the children requested help with the words 'That' and 'there'. A demonstration was made in order to help the children. A book was placed on the floor and another book at a distance. The experimenter pointed to the first book and said: "This book is here", then asked: "Tell me what I should say about the other book as I point to it". There was a quick reply of: "That book is there", and a reading of the sentence. But the difficulties had their effect on recalling 'It' in the next sentence: 'It is there' and help had to be given to the children again.

22.1 None of the children knew the name 'Mr. Smith' and pointed to the two words before they attempted to read any of the sentence: 'That man is Mr. Smith'. They were told: "This man's name is Mr. Smith". Once they had cleared one of the difficulties from the sentence, the children turned their attention to the word 'That'. They experimented with the word 'This' but none of the children attempted to apply the word in their reading. They had seen 'This' often enough to recognize that the first word in the sentence was not 'This'. Considerable pointing to the picture preceded saying the word "That" correctly.

22.2 Prolonged hesitation occurred at the next sentence; 'He is there', and an attempt was made to substitute "His" for 'He'. The children seemed to be comparing the beginnings of this sentence with the next: 'His shirt is here'. When the children recognized that 'His' could not be substituted for 'He' there seemed to be sufficient correspondence in the forms of the words to encourage the children

22.3 to recall the word 'He'. A reading of the sentence was then made,

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followed by a rapid reading of the next sentence. The children suddenly seemed to recognize the contrasts of 'here' and 'there' that were shown in the pictures and used this as a clue in their reading.

22.4 There were no requests for help in reading: "These are his shirts", but there were prolonged hesitations before any reading took place. The children seemed to have forgotten the word 'These' even though the words 'These are' had seemed to be well mastered before. The children read the two sentences 22.4 and 22.5 silently before they attempted to read 22.4 aloud. They substituted "The shirts" in place of 'These' in reading 22.4 and read: "The shirts are here", for 22.5. What seemed to be causing the difficulty was the appearance of 'These' and 'The' in close propinquity. 'These' had so far stood without any contrast and was only partially under control. When the children met the word 'The' which resembled in part the word 'These', and the word 'The' now used when more than one shirt was included, a transfer of the meaning of 'These' was put on 'The'. Since the word 'The' was in association with 'shirts', clearly shown in the picture, the two words "The shirts" became the means of "solving" the difficulty of not recalling 'These'.

Although 'He' had been read correctly at 22.2, the modes of dealing with something only partially familiar, which had been used

22.6 in the reading of 22.4, extended to the reading of: '<u>He</u> is there'. In place of 'He' the children substituted "The man". In doing this, they took, it seemed, the word 'The' from the preceding sentence and the word 'man' from the picture clue.

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During the fifth meeting the children had been engaged in much difficult reading. There had been numerous successes but the children seemed to recognize that they had made many errors. They also seemed to be aware that they had left many difficulties unresolved. There were no requests to do any further reading when the time limit of the meeting was up.

Meeting No. 6

Before beginning new reading, which extended in this meeting to the end of the seventh sentence on the twenty-sixth sheet, a re-reading took place of the sentences on the twenty-second sheet. The difficulties encountered in the previous reading of these sentences still persisted and the modes of dealing with the difficulties remained the same. 'These' was read as "The shirts" and 'He' was read as "The man". Prolonged hesitations occurred before the last three sentences were read and the children pointed to 'These', 'He' and 'The', but no attempts were made to correct the errors made before and there were requests for help.

23.1 During the re-reading the children had to be reminded of the man's name. Only a small number recalled it as well when the new sentences of the meeting were started with:'This man is Mr. Smith'.

23.2 None of the children recognized the word 'name' and requested help. They were questioned: "What is this man called?". After they answered: "Mr. Smith", they were asked: "Mr. Smith is his____?" There was an immediate reply of "name" and the sentence was read. The word "Mr." was inserted before 'Smith' in the reading but most of the children recognized their mistake and re-read the sentence correctly.

23.3 Comparing seemed to be taking place of the beginnings of these

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sentences when the children met: 'He is Mr. Smith'. In place of 'He' the children tried out "This man" and "His", then enthusiastically read "He" correctly. But no comparing of 'Mr.' and 'Mrs.'
23.5 took place and the word 'Mrs.' was said as "Mr." in the sentence: 'This is Mrs. Smith' . Comparing seemed to be taking place with the pictures, however, and this resulted in 'Her', 'She' and 'Mrs' being recognized. "He" was first tried in place of 'Her' in the sentence: 'Her name is Smith' but was rejected with the utterance "No!- her". This success led quickly to the apprehension of the words 'She' and 'Mrs.' in the sentence: 'She is Mrs. Smith'. The appearance of the words 'Mrs. Smith' in a new position caused considerable hesitation, and some experimenting, but the sentence was read correctly.

No serious difficulties were encountered during the reading of the sentences on the twenty-fourth sheet. The new word 'train' was said enthusiastically. There was extensive comparing and testing of various words, e.g., "His" for 'This', "there" for 'Here', "He" for 'His' and "hand" for 'hat'. The children seemed to be relying more and more on their own powers to handle their difficulties. There was still a tendency, however, for old difficulties to occur and modes used for avoiding the difficulty to be applied. One instance of this took place in the reading of the last sentence:
24.5 'These men are in the train' when 'These' was read as "The" and no attempts were made to correct the mistake.

The children's reading of the sentence on the next sheet indicated that they had still not fully mastered the words 'The',
25.1 'He', 'This' and 'These'. '"This' was substituted for 'The' in the

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first sentence and although there was no correction made by the children it was obvious, in the comparing which they did in the next sentence, that they recognized that the word was 'The'. Before
25.2 they read:"He is here", many of the children read aloud from the first sentence "The man" but they seemed unaware of the previous misreading. The comparing seemed to provide them with a clue for the word 'He' and this sentence and the one following were read
25.4 with ease. 'These' was substituted by "His' but a quick revision was made when the children read the word "are". The misreading of words that were formerly old conquests seemed to cause a number of children who had previously cleared their difficulty to revert to the old habit of reading 'seats' as "chairs". And for these
25.5 children the old habit persisted into the final sentence where again 'seat' was read as "chair".

26.1 The return to the pattern:'This is a seat and this is a seat' caused a return again by the children saying "chair" instead of "seat". And again the familiar pattern of:'These are....' in the second sentence resulted in no hesitations at either the word
26.3 'These' or the word 'seats'. The third sentence:'This is a tree', was read with an enthusiasm that seemed to cause a misreading of
26.4 the next sentence where 'It' was substituted with "This".

The new word 'tree' seemed to cause no problem for the children but the word 'three' in the sentence: 'These are three trees' was read as "tree". The children counted the three trees on their own and made the necessary corrections to their reading. They were also successful in reading the last sentence: 'These are three seats'.

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Meeting No. 7

The enthusiasm that was evinced during the final stages of the sixth meeting seemed to carry over to the seventh meeting. The children read from 26.2 to the end of 31.4 during the meeting and they now seemed much less inclined to ask for assistance. They only did so after they had made a number of attempts to clear the difficulties by themselves. In their reading, they appeared to be continually engaged in comparing letter by letter variations between words, configurations of one word with another and one pattern of sentence meaning with other patterns. They also appeared to be increasingly trying out words or groups of words orally before making an attempt to read the sentences.

The protocols for this meeting showed a considerable decrease in the number of common problems: What was a difficulty for one child was not necessarily the difficulty of all the children. Of the common difficulties, the first took place when the children
27.3 were reading: 'Three rats and three rats and three rats are nine rats'. They seemed unable to recognize that the three groupings could be brought together to make one group of nine. The children had numerous opportunities in their arithmetic lessons to hear the number nine and to count the number of things in a group of nine objects. In this sentence, 'nine', however, was a new word and there were requests for help after prolonged hesitation. The children were asked to count the number of rats in the picture as the experimenter pointed to the drawings. In pointing to the drawings an attempt was made to have the children count in groups of threes thus: 1 2 3, 4 5 6, 7 8 9. A return was then made to the reading but the children still seemed uncertain as to the word 'nine'.

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On the last sentence in the sheet: 'These are nine rats' counting had again to take place.

The word 'nine' seemed to become more definite through the
28.1 example: 'Three men and three men and three men are nine men'. No requests were made for help with the word; the children counted the drawings in order to check what they had read. Hesitation
28.2 occurred over 'nine' in the next sentence but this seemed in part due to the experimenting that was done with the word 'Here' that preceded the reading of 'nine'. Both 'His' and 'He' were tried out before the word 'Here' was said. After the sentence was read, there took place another counting of the drawings. The counting also
28.3 served in the next sentence: 'And here are ten men' to assist the children in discovering the new word 'ten'. But in their concern for the new word, the word 'And' was omitted from the reading.

The words 'This', 'That' and 'These' were tested by the children in their reading of the sentences on the next sheet. The children seemed determined to discriminate between the words. If they made a mistake on the first speaking they corrected themselves immediately and often preceded their corrections by "No!" They emphasized the words in their speaking of the sentences but seemed so concerned with making discriminations of the three words that they read
29.4 'Those' as "These" in the sentence: 'Those are trees'. They seemed unaware that a new letter as well as a new word had been introduced into their reading. They read 'nine' and 'ten' correctly and again checked their reading by counting the objects.

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29.7 The new word 'one' was read as "a" however.

30.4 Hesitation preceded the reading of 'Those are his arms'. The children seemed to recognize that the word 'Those' was different than 'These' but the latter word was the one used in

30.5 reading the sentence. When the children met the word 'not' in the sentence: 'His hat is not in his hand' they omitted the word in their reading and failed to notice the incongruity of what was read with what was in the picture and also what was read in the

30.6 next sentence: 'It is on his head'.

Throughout the reading of the sentences on the last sheet there were numerous indications of individual difficulties. No one particular problem was encountered by all the children. Word by word reading was the common characteristic with some of the words being repeated before the children read further. The rhythm of reading, where words were linked together and stress was laid at particular points, was missing in the reading. Each sentence read, however, seemed to be a personal conquest for the children and all indicated a reluctance at stopping reading at the end of the meeting.

Meeting No. 8

There was an increase of seven sentences over the number of sentences read in the previous meeting during the eighth meeting. The children re-read the sentences from 30.5 then read to the end of 36.2 Spontaneous re-reading of the sentences was a predominant characteristic of this meeting.

Much of the re-reading seemed to be due to the children's efforts to verify what they had read with the picture and also to revise what they had read previously in the light of later reading.

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One instance of this occurred in the re-reading of the last two sentences on the thirtieth presentation sheet. During the reading of these sentences in the previous meeting, the word 'not' had been
30.5 omitted from the sentence 'His hat is not in his hand' and the incongruity of the reading with the picture and with the next sentence:
30.6 'It is on his head', did not seem to be taken into account by the children. In the re-reading, the word 'not' was omitted again but the next sentence was read correctly. A spontaneous re-reading of 30.5 then took place in which the word 'not' was read with pronounced emphasis.

The mode of dealing with a difficulty by substituting other words that seemed to have similar meanings in place of an unfamiliar word
32.1 occurred again in the reading of: 'This is Tom', which was read as: "This is a boy". Prolonged hesitations took place before the sentence was read, but there were no requests for assistance. The children seemed to recognize that the drawing was not of a man, however.

The new word 'one' had also not been discriminated by the children as distinct from 'a'. In place of the word 'one' in: 'This
32.3 is one arm', the word "a" was used. Much hesitation occurred at the
32.4 word 'other' in the next sentence 'That is the other arm'. Instead of requesting help for the word 'other' the children pointed to the word 'one' in the preceding sentence and said: "I don't know that word". The children seemed to recognize that the two sentences were integrally related in some way and that the clearing of one difficulty could help them in the second. Questioning took place here about the picture.

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The experimenter pointed to both arms and said: "These are two arms". One arm was covered up then and the children were asked as the one arm was pointed to: "This is____arm?" There was an immediate filling in of the blank space in the utterance and the children returned to their reading. No requests for assistance were made for the word 'other' but considerable re-reading of: "This is one arm", took place before the word was spoken correctly. And while the children were doing this the word 'That' in 32.4 was read as 'This'. Both the next two sentences were read correctly by the majority of the children.

33.4 In the sentence sequences: 'This is one ear'; 'This is the
33.5 other ear' the children stressed 'one' and 'other' in their reading. The placement of the sentences about the drawing seemed to be particu-
33.8 larly helpful to them. Also the word 'not' received stress in the children's reading of: "It is not on his head". Pointing to the picture and re-reading of the sentences seemed to be used extensively by the children to verify what they had read.

Difficulties were still encountered with the word 'its' in the
34.2 sentence: 'This is its nose'. The word was read as "a" and seemed to be misapprehended because of the children's concern for the word 'nose'. They had read the word correctly on the previous presentation sheet but it was apparently still not definite. It seemed to be coming more so on the reading of 34.4 and 'its', in turn, was read correctly.

There was much oral experimentation with the words 'This, 'There' and 'The' during the reading of the sentences on R 34. Active comparing

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seemed to be taking place of the words in their contexts. Also the new letter 'o' seemed to be coming more definite. The words 'on' and 'nose' were read correctly. When the children came to the
34.6 sentence 'This is a tooth' they first read 'tooth' as "teeth", then immediately corrected themselves. A number of the children pointed to the double vowels 'ee' and 'oo'. In reading the last sentence:
34.8 These are three teeth', the children's first reaction was to read "tooth" for 'teeth' but there was again an immediate self-correction followed by a re-reading of the sentence in which the words 'three' and 'teeth' were stressed.

The children seemed much more able now to discover new vocabulary. Their apprehension of the words seemed to include a number of activities. They seemed to compare words and parts of words for not only their similarities and differences in appearance but also their phonemic character. They also seemed to compare one sentence structure with another for their semantic similarities and differences. Both the words 'their' and 'noses' were apprehended correctly in R 35 with much
36.1 enthusiasm by the children. Similarly 'room' and 'door' were
36.2 apprehended in the last two sentences read at the eighth meeting.

Meeting No. 9

The increasing number of successes in the eighth meeting seemed to indicate a growing awareness by the children of the meanings of the written symbols that they were invited to read. The reading that was done during the ninth meeting indicated, however, that many of the written symbols were still not mastered to the point where they would return in new and toughening contexts as a power.

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From the point at which reading started at 35.3 through to 40.6 where the meeting ended, there were common errors, confusions and difficulties with words that the children had seemed to have mastered before.

36.3 'That' in the sentence: 'That is a seat' and 'The' in the
36.4 sentence: 'The seat is in the room' were both substituted with "This".
36.5 Even 'A' in the sentence: 'A hat is on the seat', was substituted with "The". The children did not seem to notice that they had made these errors and their successes with these words at other places in the reading indicated that the children could still not maintain the same attentiveness to all they were doing.

37.2 The word 'not' was again omitted in reading: 'He is not Mr. Smith', and the omission made the apprehension of the word 'another' in the
37.3 sentence: 'He is another man', a certain failure. Nor did the children seem to recognize that 'another' was a combination of two words that they had already met before. Before the children could read 37.3 it was necessary to first direct their attention back to 37.2. In this re-reading 'not' was read correctly but this did not seem to succeed in helping the child to apprehend 'another'. Before this was accomplished it was necessary for the experimenter to read: 'He is <u>not</u> Mr. Smith"; "He is_____man".

37.4 The children's difficulty with 'name' in: 'His name is Read', seemed to stem largely from the last word in the sentence, for when the experimenter said: "This man is called Read", the children succeeded in reading the sentence correctly. Also, the appearance of the new word
37.7 'son' seemed to cause the children to substitute "This" for 'Here'

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for after questioning through which the children recognized the word 'son' the sentence:'Here is his son', was read correctly.

In previous reading the children had not attempted to read the
37.8 word 'Tom'. Now they were faced with the word in two sentences. After prolonged hesitations they indicated that they had seen the word before by saying:"I don't remember this word". The children were told that he was called "Tom". The children read:"His name is Tom", but did not re-read the sentence. They did re-read the next
37.9 sentence:'He is Tom', however, and their experimentation with "This" for 'He' seemed to indicate that they recalled the pattern in which the word 'Tom' had been seen before.

An extensive number of difficulties, characterized the reading
38.1 of the thirty-eighth presentation sheet. The words 'Read' and 'son' were not recalled in the first sentence:'Mr. Read and his son are in the room', nor was the word 'Tom' in the sentence:'Tom is at the door'. And the previous reading of:'Mr. Read and his son', did not help in pointing out Tom's relationship to Mrs. Read. Questioning was needed
38.6 before the children read the word 'mother' correctly in the sentence: 'Mrs. Read is Tom's mother'.

In their concern for the words 'mother' and 'son' the children seemed to encounter difficulties as well in distinguishing 'She',
38.7 'his', 'He' and 'her' in the next two sentences:'She is his mother';
38.8 'He is her son'. Their incomplete mastery of these four words made the reading of the last two sentences on the sheet particularly difficult for the readers and few seemed to be successful in comprehending the relationships that were being pointed out.

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39.1 The difficulties encountered in the preceding sheet seemed to affect the reading of the first sentence in the next. 'Here' was read as "These" and assistance was requested for 'her', 'three'
39.2 and 'sons'. In attempting to read:'She is their mother' both 'their' and 'mother' were baffling to the readers. Also 'one', 'another' and 'other' in the next three sentences produced lengthy hesitations and requests for assistance. On the final sentence on the sheet:'Their names are Tom, Ted and Dan', assistance was requested for all the words except 'are'.

There was evident relief when the thirty-ninth sheet was completed. The children took up the reading of the sentences on the fortieth sheet with considerable vigour as if to demonstrate that they could read what was printed on the sheet. There were few lengthy hesitations and no requests for assistance. The word 'store' was
40.4 read as "shop", but was cleared in the sequence: 'This is the store';
40.5 'This is its door'. "Shop" was substituted for 'store' during the first reading but after reading the next sentence there was a re-reading of:'This is the store', and 'store' was read correctly. The
40.6 children also read:'Hats and shirts are in the store', correctly and it was on a note of success and a request for more reading that the ninth meeting ended.

Meeting No.10

During the final meeting of the experiment there was a re-reading of the fortieth presentation sheet and an extension of new reading to 46.5. The re-reading of sentences that had been handled successfully in the previous meeting seemed to reassure the children that they

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could be successful as well in the new sentences. When they encountered difficulties, the children seemed to be much more ready to hesitate, to take account of the difficulty, to test, and to examine what was appropriate for clearing the difficulty.

41.1 In reading: "That is Tom", the children tried out "This", then re-read the sentence correctly. For 'These' in: 'These are his shoes' they first said "This" then on reading 'are' made a rapid correction to "These". Their first quick look at the picture seemed
41.3 to lead them to say 'boots' for "shoes" in the sentence: 'These are his shoes'. When they met the word 'shoe' in the next sentence:
41.4 'This is one shoe', there was a pointing to the picture first and then 'shoe' was read correctly. And before they read the word 'other'
41.5 in: 'And this is the other shoe', they re-read 41.4, then read 41.5 correctly. On the final sentence: 'His shirt is on another seat', there was comparing of 'other' and 'another' by pointing to the words and saying them aloud before the sentence was read.

In reading the sentences on the forty-second sheet most of the children succeeded in apprehending the new vocabulary. 'That' and 'There' were distinguished but 'Those' was still read as "These".
43.2 The word 'its' was read as "a" in the sentence: 'There are its roots' but the children recognized their error and made a correction. Some pointed to 'a' in the preceding sentence 'This is a tree' before making
43.3 the correction. Their correct reading of 'Its roots are in the earth' coupled with a pointing to 'its' in the preceding sentence, indicated that the children were recognizing that the word could be the same even if it had a capital letter at the beginning.

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The children evinced great enthusiasm when they apprehended a new word. They said the word with stress, often repeated it aloud and sometimes clapped their hands. They also evinced the same enthusiasm when they apprehended a word that had given them trouble before. Thus the reading of 'mother', 'Read', 'his', 'son' and 'Tom' in R 44 seemed to be major conquests for the children.

Again in the next presentation sheet the new vocabulary was apprehended correctly. There was considerable oral experimentation with the words 'man' and 'woman'. In reading the last two sentences
45.6 on the sheet: ' He is not at the window'; 'She is not at the door', the words 'not' were spoken with emphasis in both sentences.

During the reading of the sentences on the final presentation sheet success seemed to be the common characteristic. Before the
46.2 children attempted to read 'women' they appeared to say the word "woman" quietly to themselves. They said the word 'women' aloud after they had pointed to the pictures as well. 'Two' in the sentence: 'Two windows and one door are in the room', caused them to make a prolonged hesitation. In pointing to the drawing they directed their attention to both windows and the one door. In doing this, they seemed to indicate that, with the exception of the first word in the sentence, they had successfully read the rest silently and were using the entire context of the sentence as well as the picture to help them in apprehending the new word. They emphasized

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their new conquest then by stressing 'two' in the final sentence: 'Two men and two women are in the room'.

The preceding profiles of the steps the C I children took in becoming aware of the meanings of written symbols were arrived at by an examination of the protocols of 42 children who did oral reading of the Richards-Gibson reading material on all ten meetings. Of the other C I children, one took part in nine meetings, two took part in eight meetings and one took part in seven meetings. Five of these children missed meetings because of absences and one child missed two meetings because he started later than the other children through taking the place of a child who could no longer participate in the experment. If a child was absent at the time a meeting took place, he started to read at the next meeting at the place where he had previously left off. A re-reading of the previous six sentences seemed to provide sufficient opportunity for the child to recall what he had been doing and to prepare him for reading new sentences. The characteristics of learning evinced by the six children on those meetings they had participated in, were closely similar to the profiles of learning evinced by the children who had participated on all ten occasions.

The C I children worked at reading the Richards-Gibson material while they were not in the company of other children. The characteristics of their learning must now be contrasted with the learning of the E groups. For each meeting, a profile of common characteristics observed in the eight groups is detailed. As with the examination of the protocols of the C I children, both a cross-sectional and longitudinal examination of the protocols of the E groups was made. Attention had to focus in these examination not only on how the children were

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becoming aware of the meanings of written symbols but also on those ways the children appeared to be learning from one another and also aiding each other in their learning.

(ii) Profiles of the E groups' reading.

Meeting No.1 (Re-reading during meeting of 1.1 - 3.1: New reading to 6.1)

Those same characteristics of dealing with new and unfamiliar reading tasks that predominated in the first meeting with the C I children were also evident during the first meeting with the E groups. They exhibited a helplessness in knowing what to do in their reading beyond that given to them in starting the reading. Their tasks were also further complicated in that they had to take turns at reading aloud with other children with whom they had not worked as a group before. They seemed so concerned with when their turn was to come that they seemed to pay only slight attention to what was being read. When their turn did come, they read in a parrot-like fashion using what they had just heard or what they recalled the experimenter to say when the reading was started.

The pattern: 'This is a ....', was read often enough in the first four sentences to seem to satisfy the children that all their

2.3 reading could be fitted into the pattern. They read: 'This hat is his hat', as: "This is a hat", without any hesitation.

During the second reading of this sentence, there was a hesitation at the word 'hat' and a number of suggestions of the word from the group. Other suggestions of 'This' and 'is' tended to confuse the reader and the sentence was again read as: "This is a hat". The next

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two sentences read seemed to assure the children that all they had to do was use the pattern; 'This is a ....', look at the picture and

3.3 say the final word in the sentence. 'It is his hand' was read as:"This is a hand", without hesitation and with no suggestions for correction.

Words were substituted in order to maintain the familiar

4.2 pattern. Thus:'This is his hat', was read as:"This is a hat". And

4.3 groups of words were used for single words as when 'His hat is in his hand', was read as:"This is a hand". There were prolonged hesitations before each of these sentences were read. Many suggestions were offered as to what the sentence should say. Of these, some could have been used to clear the difficulty, but they came in association with suggestions that did not seem in any way connected with the sentence Thus when there was a hesitation at the word 'His', suggestions were made of:"a man", "hat" and "is". Although 'His' was suggested in a number of groups it was taken to be "This" by the harassed reader who

4.4 then proceeded to use the old pattern. 'It is in his hand' was read in most of the groups as:"This is a hand", but in two of the groups it was read as:"This is in a hand".

5.1 The sentence:'This is a hat and this is a hat', was read by the C I children as two separate sentences. The E groups adopted the same mode of circumventing the problem of the word 'and' and the now-capitalized form of 'this'. They were encouraged in this by the suggestions from the group, who seemed more concerned with the words 'hand' and 'hat' than with other parts of the sentence. All of the compound sentences on R 5 were read by separating the two parts and

omitting the word 'and'. The suggestions that impinged on the E group readers seemed to make impossible the success which the C I children had in reading the word 'and'.

The suggestions came from a limited number of members of the groups. They seemed to be given not as a means of helping the reader but as a way of guaranteeing a turn. There was considerable pointing to the pictures but often the pictures pointed to belonged to a sentence that had already been read or was to follow soon. All the children indicated that they were not reading along with the child taking a turn. At the first indication of a hesitation, suggestions were immediately offered and most of the suggestions were irrelevant to the immediate problem of the reader.

A number of children refused to accept the suggestions offered by the children and turned to the experimenter for assistance. While these children were being questioned, the rest of the group did not appear to be interested and seemed to regard the questioning as concerned only with the child taking a turn.

They also had difficulty in finding the place where a turn was to begin and where it was to end. This added further confusion to the first meeting. The twenty minutes allotted to a meeting was completely used up before each child could have an even number of turns. In leaving the study room the children evinced dissatisfaction with this, and there were a number of accusations made that some children had "read too much".

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Meeting No. 2 (Re-reading 4.3 - 6.1; New reading to 10.3)

During the re-reading of the six last sentences read at the previous meeting, the same modes of dealing with a difficulty that had been used in the first meeting persisted. When the readers taking a turn found a clue that seemed to suggest the meanings of the printed symbols they tended to be satisfied with their reading. They did this so long as what they said accorded reasonably well with the drawings. The suggestions offered by the group were concerned primarily with the pictures. The children seemed to pay little attention to what the words were that were making up the sentences. Their attention still seemed restricted to their own turns. At each hesitation, there were a number of suggestions offered but few of them were directly connected with the problem that was causing the hesitation.

One of the principal tasks that the child taking a turn seemed to have was to select from the number of suggestions offered, that one which was relevant to the reading he was attempting. The first indication that this task was being taken up occurred during the
6.3 reading of: 'This is his hat and this is his hand'. The children began reading: "This is a ....", then hesitated. There were a number of suggestions of 'hand' and 'hat'. No requests for assistance were made and after a time the child read: "This is a hat"; "This is a hand". The two words 'hat' and 'hand' were stressed in the reading and most of the readers pointed to the pictures above the words.

6.4 In attempting to read: 'It is in his hand', the children indicated that relevant suggestions could be a stimulus for a revision of what

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was read. The sentence was first read as: "This is a hand", and was followed by a small number of suggestions of 'in'. The children taking a turn looked back at the sentence and re-read it as: "This is in a hand".

Unless the suggestion clearly related to the picture clue it did not call forth a re-examination of the reading. At the sentences:
7.2 'This is his hand' and 'This is his head' there were a limited number
7.3 of suggestions of 'his' but they were outweighed in number and volume by the suggestions of 'a'. The reader substituted 'a' for 'his' at this point of hesitation. When the reader hesitated at the word 'head', however, there were only a few children who suggested the word and most of the suggestions were of "haad" and some of "face". In all the groups, the readers selected the suggestion of "head".

Once a child had recognized what a word was in a sentence, that word seemed to become a personal possession which he used as his suggestion. At the first sign of hesitation, on the part of another reader at "his word", he prompted the reader. Before he made a suggestion, the child seemed to compare "his word" with words of similar configuration. He often was not successful in making these discriminations and his suggestion was often not accepted. When he was successful, that seemed to encourage him to take up another word that he could make his own. When he was not successful, this did not seem to deter him from making further comparisons and suggestion.

It was by these means that the words 'hat', 'head' and 'hand' were discriminated and these discriminations seemed to be also the points at which the children in the group began to take account of what they and

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the other children were reading. The sentence: 'This is a hat and this is a hand', was read as two separate parts with the word 'and' omitted. The children who had mastered 'hand' before suggested the word 'and' after the sentence was read. This prompted a re-reading of the sentence with the word 'and' connecting the two parts.

Suggestions that were, in part, somewhat similar to the word to
9.3 be perceived were used by children to lead to more positive suggestions. In the sentence: 'It is his hat', 'his' was read as "is", then the reader hesitated. The suggestion of 'a' by a number of children was accepted by the reader who read "This is a hat". When he finished reading, there was the suggestion of "his" made. Another reading of the sentence took place to make the sentence: "This is his hat".

A number of the children in the group seemed to recognize that 'It' was not 'This' but they made no suggestion of what the word might be. When their turn came to read, they refused to use the suggestion of "This" and requested help from the experimenter. During the questioning that was used to help the reader, there was an increasing tendency shown for the majority of the children to listen to what was asked and what was said. Many volunteered answers but until the reader was satisfied that the word was 'It', he disregarded what the others were saying.

Each of the words in the sentence on R 9 seemed to be given more careful study than previous reading. The children seemed to be more aware now that the pattern of the sentences could shift from one turn to the next. There were many hesitations during the reading, each hesitation being followed by a number of suggestions. Most often the suggestion first made was accepted uncritically. There was a growing tendency, however, for suggestions to be refused until the

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reader had time to confirm for himself what he thought to be appropriate.

In the last three sentences read at this meeting, there were numerous requests for assistance from the experimenter even though the suggestions offered could have been used in the child's reading. The children seemed to want confirmation as to which of the suggestions offered were helpful and could be trusted. While the child taking a turn was being questioned, there was close attention by the rest of the group. Many pointed to the words and pictures on the presentation sheet as answers were made to the questions.

All the children were given an equal number of turns during the second meeting. There were few disruptions in the group over "turns" and there was an increasing tendency to attend to what was being read. At the end of the meeting a number of children stated that they "liked this reading".

Meeting No. 3 (Re-reading 9.5 - 10.3; New reading to 14.3)

During the first two meetings, the more positive indications of learning evinced by the C I children were not clearly evident in the E groups. As the E group children took turns at reading, pointing to the pictures, pointing to the words or parts of words and comments on similarities and differences were not common characteristics in the protocols. The successes the children were having and the increase in the number of positive suggestions made indicated, however, that comparing was taking place but it was taking place primarily when the children were reading silently.

The fact that the children had not advanced very far in using the mode of comparing in order to perceive and to confirm what they were doing in reading was indicated in the errors made during the re-reading.

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The errors were similar to those made by the C I children. Old habits of omission, substitution and insertion of words, in order to handle meanings, still predominated. There were numerous suggestions made when the errors occurred, and many of these suggestions could have been helpful. But the readers did not seem to be able to attend to what they were reading aloud and to distinguish at the same time which suggestions were helpful from those that were not.

They were, however, less ready to accept immediately what was
10.3 suggested. In attempting to read: 'It is his head', the children taking a turn hesitated at the word 'It'. The suggestion of "This" was not accepted nor was the suggestion of "It". There was a request made to the experimenter for assistance, and immediately after one question had been asked, the children turned to the sentence and read it correctly.

10.4 In reading: 'This hand is his hand', the children indicated that they could rely on themselves to verify the suggestions that were made. The children hesitated at the word 'hand'. There were immediate suggestions of "hand" and also "head". The children did not accept either suggestion immediately but pointed to the word 'head' in the preceding sentence and said it quietly. They then pointed to the word 'hand' and said it aloud.

Throughout the groups, there were indications up to this point in the third meeting of an increasing number of positive suggestions with a corresponding decrease in the number of indiscriminate guesses. The children in the group seemed to be paying more attention - even if not sustained - to what the child taking a turn was reading.

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This increased attentiveness made the probability of at least some of the suggestions being correct much higher. In attempting
11.1 to read: 'This is a man's head', the reader hesitated at the word 'man's'. There were suggestions of 'man' and 'head' and in all the groups at least one child said "man's". The correct suggestion did not guarantee success in reading the sentence, however. Only in one group was it read correctly, the majority read the sentence either as: "This is a man" or "This is a head".

Comparing was indicated further in the reading of the next two
11.2 sentences: 'This is his hat and this is his hand' and 'His hat
11.3 is in his hand'. Comparing took place of one written form with another. The first two letters in 'hat' and 'hand' were pointed to. The words were also spoken with emphasis being placed on the first two letters. This comparing took place before an attempt was made to read the sentence. There was also an indication of comparing spoken and written forms of words with what had just been read. When the children read "His hand" for 'His hat" the child who had just finished reading said: "No! That's 'his hand' " and pointed to the words in 11.2. The child taking a turn looked to where his partner was pointing and then proceeded to read 11.3 correctly.

Difficulty had been encountered by the C I children in reading:
12.1 "This man is in a seat". They had read 'This' before and also parallel structures of 'This hand' and 'This head'. When they encountered 'man', in an unfamiliar position, they seemed particularly puzzled and could not compare the structure with another similar

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structure, for there were no instances of this on the presentation sheet. The group seemed to provide for opportunities for comparing similar structure. When the child hesitated at saying 'This man' there were suggestions of not only "This man" but also "This hand" and "This head". These suggestions seemed sufficient to help the reader over the first obstacle in the sentence.

When they met the new word 'seat', the readers seemed satisfied to read the word as "chair". There were a number of exclamations of "No!" but no suggestions were made as to what the word was. In
12.2 the next sentence: 'He is in a seat', the reader was faced with two new words 'He' and 'seat'. When he read "His" for 'He' he was quickly reminded that 'His' was not correct. A number of children seemed to have discovered what the new word was by reading the entire sentence silently. They suggested "He is in", which prompted the reader to begin his reading again.

The clearing of one difficulty by the group seemed to make possible a successful tackling of a second defficulty. In all the groups the readers seemed to have noted that the reading of "chair" for 'seat' had been questioned. They hesitated at the word and then said it correctly.

During the reading of the last sentence on R 12, a rhythm in reading the sentences was indicated. Stress was laid on the words underlined: 'This is a <u>seat</u> and <u>this</u> is a seat'. The rhythm continued throughout the reading of R 13. When a word was met for the first time, there was a hesitation followed, it seemed, by a testing of different suggestions offered about the word and about the picture

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clue. The sentence was then re-read and stress was laid on the word that had caused difficulty. Only a small number of children requested help from the experimenter with the new words: 'hair', 'arm' and 'ear'. The rhythm seemed to focus the children's attention to particular points in the reading at which discrimination had to be made.

There was an increase in the speed of taking turns shown on R 13 and during the time limit the groups were able to go on to the end of R 14. Again stress in reading was placed on the final word of the first part of the sentence and the final word in the second part. But the success that seemed to be evident with each new "turn" seemed to obscure from the groups and from the readers the fact that 'an' was not 'a' in the sentence: 'This is an arm and this is an arm'. In all the groups, the new word was read as 'a'.

Meeting No. 4 (Re-reading 13.4 - 14.3; New reading to 18.2)

The children in the E groups now seemed to greet each new meeting with enthusiasm. When the experimenter said one or two names of the children in asking the group to come to the study room, the rest of the children got up from their seats and went directly to the room. This seemed to indicate that the children now recognized who their partners were. There were few problems arising from each new seating arrangement and few problems in taking turns.

There were suggestions being made now by all the members of the group. Some of the children in each group were hesitant in making a suggestion. Often they waited until others had made their suggestions before they said anything. Once they had made their suggestion, many

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children pointed to the words or the pictures to substantiate the suggestion.

The children in all the groups now seemed to be more concerned with the sentences that were being read aloud. As one child was taking a turn, many of the other children could also be heard reading along quietly. There was also silent reading of the sentence just completed and of the one to follow, in a number of the groups. This reading seemed to be prompted by a search for clues to aid in providing suggestions. One instance of this occurred during the
14.2 reading of: 'This is an arm and this is an arm'. A number of children read "a hand" in place of 'an arm'. Some suggestions were made as "No! this is 'a hand' " - with the child making the suggestion pointing to the words 'a hand', in the next sentence. Other suggestions directed attention to the words 'a man' in the preceding sentence. Both kinds of suggestions acted as a means of directing attention to the word 'an' which had been misread before. Suggestions were made now of "an arm" with the word 'an' receiving stress.

One of the dominant characteristics during this meeting was the way in which the suggestions of the group could force the reader to
15.1 re-examine what he had read. In attempting to read: 'This is a man's head', the word 'man's' still was not mastered by the children. A number of readers omitted the word. Others read the sentence either as: "This is a man" or "This is a head". When hesitations occurred at the word, or after the child had made his attempt, there were suggestions of "man's", "man", the sound "s" and some exclamations of "No!" There was also no attempt by the next reader to take his turn.

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In the majority of the groups, the reader hesitated and then re-read the sentence correctly.

This forcing of attention also seemed to facilitate the apprehension of plural forms. There were prolonged hesitations at the sentence 'These are his ears'. The reader's attempts to read the sentence as: "This is a ear", was subjected to a multitude of suggestions. Most of the suggestions were concerned with only the last two words where "his ears" was said by the majority of children and the words were pointed to. Re-reading of the sentence took place then, and the sentence was read as: "This is his ears". By the time this reading occurred, at least one child in each group had recognized the errors made and suggested "These are". With the exception of one group, a second re-reading took place in which the sentence was read correctly. In the one group in which the sentence was not read correctly, the
15.5 later sentence: 'These are hairs', was read correctly.

Attention was also forced towards insertions and substitutions. In reading: 'This is hair and this is an ear', the readers inserted 'a' before the word 'hair' and read "a" for 'an'. There were suggestions that: "There is no 'a' there", accompanied by pointing to the place where the insertion had been made, and there were suggestions of "an" at the point where 'a' was said. A re-reading took place after these suggestions were made and the sentence was read correctly.

The suggestions that prompted a re-reading were generally preceded by the exclamation of "No!" followed by the suggestion. Often there was a pointing to the place on the sheet where comparisons could
15.5 take place. Thus in reading: 'These are hairs', the attempt to read:

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"This is", was greeted with: "No! These are men", accompanied by a pointing to 15.3.

The children taking a turn reacted to this forcing by experimenting with words of which they were unsure before they attempted to read the sentence. While they were doing this, there were few suggestions made. Only when hesitations and errors occurred in the actual oral reading of the sentence did the children offer suggestions.

16.1 Before reading 'rat', 'its' and 'ears' - the new words in R 16 -
16.5 there were attempts to experiment with what these words might be. Generally this experimenting was successful. Where it was not, the group suggestions forced a re-examination and a re-reading of the sentences. Although these re-readings were not always successful, the suggestions that were made by the other children indicated that at least one child in each group had been successful in apprehending the words.

Even when no child in the group could suggest what a new word was, there were a number of children who were ready to point out that what had been said was not correct. This seemed to make the next child reluctant to take up his turn and the reader was forced to examine what he had read. While he was doing this, there was time for the group to try to discover appropriate suggestions. When the children persisted in reading incorrectly after suggestions had been made, there were occasions when the entire sentence was read as a further suggestion. Thus when the readers persisted in reading: "This
17.2 a man" for: 'These are men', the whole sentence was read by a number of children in the groups.

Also specific parts of words were pointed out by certain members

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of each group. Thus the 'a' and 'e' in 'man' and 'men', the 'at' in 'rat' and 'hat' and the plural forms of 'rats' and 'hats' were pointed to and stressed in a number of children's suggestions.

The child who was reading did not seem to be bothered by the forcing of attention by the rest of the group. There were few instances during this meeting of complete blocking and few requests for assistance made to the experimenter. Each child was only reading for a comparatively short time. The majority of his time was occupied in reading silently and acting as a critic of others' oral reading. Most of the children in the eight groups seemed to become engrossed in the reading during the meeting and were reluctant to leave the study room when the time was up.

Meeting No. 5 (Re-reading 17.3 - 18.2; New reading to 23.4)

During the previous four meetings there was a gradual increase in the number of positive suggestions that were made. Certain suggestions seemed to be more readily accepted than others even though the suggestions led to incorrect reading. During the fifth meeting there were indications that seating partners were more ready to give and to accept each others' suggestions than those of other children in the group. Their tendency seemed to stem from the fact that when a child was taking a turn, the child who had just finished reading and the one who was to read next were most attentive to what was being done and the reader seemed to recognize this and was more ready to accept their suggestions.

This tendency led often to the reader making errors. One instance of this occurred when children in six of the groups were
18.1 reading: 'This is a man's head'. The reader hesitated at the word

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'man's' and the child whose turn was next suggested: "This is a man". In spite of a number of suggestions of "man's" from the group, the child taking his turn re-read the sentence as: "This is a man". Towards the end of this meeting, however, there were a number of indications of non-acceptance of partner's suggestions.

But when errors were made by the child taking a turn and suggestions were offered from the group this seemed to make the next reader more attentive to what he was doing. Thus when "This" was
18.3 read for 'These' in: 'These are his hands', suggestions of "These" were made by most of the children in the group. When the next reader took his turn at reading: 'These are his ears', the word 'These' was stressed.

There were indications during the meeting that when a child encountered a difficulty, heard suggestions for clearing the difficulty from the group, cleared his difficulty by comparing, and confirmed what he was doing by re-reading, that difficulty was a personal conquest. The child seldom made the same mistake again and not only suggested the word, or words, when another child faltered at the same place as he had, but also indicated where the reader might compare in order to help clear his difficulty. An example of this occurred when the children met the new word 'The'. Suggestions made were "This" and "These". The majority of children attempted to use 'These' but were not content with what they were reading in the rest of the sentence:
19.3 'The hat is his hat'. By the time they finished their attempt a number of children had suggested "The". The readers hesitated, a number pointed to the word 'This', and then re-read the sentence correctly. In later reading, if a child taking a turn said "This"

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for 'The' or said "The" for 'This' or 'These' the child who had "discovered" 'The' was the first to make the suggestion and to point out other words for comparison.

The suggestions from the group forced the reader to re-examine
20.2 what he was doing when he read: "This is a man", for: 'That is a man'. The suggestions were first exclamations of "No!" but were soon followed by suggestions of "That". When the children made this suggestion they pointed to the word 'That' at 20.4. They seemed to have read on ahead silently in their search for clues to what the word was. Like the C I children, the phonemic similarity of 'hat' and 'That' had been sufficient to help them apprehend the new word. After a prolonged hesitation in which the child taking a turn read: 'This is a hat', and 'That is a hat' silently, the second sentence was read correctly. In the reading which followed, stress was placed on the words 'hat', 'That', 'rat' and again 'That'.

Two difficulties occurring in the same sentence had caused much perplexity for the C I children. The children in the group seemed to be aided in this respect because at least one child in a group seemed to be able to recall a word that had been met before. The suggestions made, thus served to help the reader to recall the word as well and he was then able to take up the next problem. Both 'He' and 'here' caused
21.2 hesitations in the sentence: 'He is here'. The first word had been mastered by some of the children in the group before and their suggestions were accepted by the reader. Once this difficulty had been handled, the readers attempted to read 'here'. They experimented with the word by trying out 'he'. This indicated that they recognized the structural similarity of 'he' and 'here'. This was sufficient

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to arouse suggestions of "here", coupled by a pointing to the circle in which the drawing of the man was placed. A re-reading of: 'He is here', took place in which the new word was read correctly. This success aided the apprehension of 'there' in the sentence: 'He is
21.4 there', and this further new word was stressed in the reading of: 'That hat is there' and 'It is there'.

The only place where requests for assistance were made by all the groups, occurred when the children attempted to read 'That man is Mr. Smith'. The groups were told that: "This man's name is Mr. Smith". It was only necessary to say the name once however. When hesitations occurrred at the words 'Mr.' or 'Smith' in later reading there seemed to be always someone in the group who could recall the name.

Throughout the remainder of the reading done at the fifth meeting, the group, by their suggestions and exclamations, continually forced the readers to attend to what they were reading. There were few suggestions when the reader was experimenting with a word but once he began to read the sentence as a unit, suggestions and criticisms were made at all those points at which he made misapprehensions. The readers seemed to scan the sentences for points of difficulty and then experimented with possible choices that could be made by speaking the words softly to themselves. Often they pointed to other words and to the pictures . When they seemed satisfied that they could read the sentence aloud they shifted their position in their seats and began reading.

While the reader was hesitating, before he began his oral reading, the rest of the group seemed to be reading silently. If the sentence did not seem to pose any difficulty for them they also read the next

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sentence as well. This additional reading seemed to serve well in helping with new vocabulary. Thus the word 'name' caused a prolonged
23.2 hesitation in the sentence: 'His name is Smith'. A number of
23.3 children suggested: "He is Mr. Smith" and this seemed sufficient for both the reader and a number of children in the group to recognize that the new word was 'name'.

Meeting No. 6 (Re-reading 22.5 - 23.3; New reading to 27.4)

During this meeting the children taking turns indicated a greater reliance on their own power to do the reading rather than suggestions from the group or assistance from the experimenter. The children who were immediately waiting their turn appeared to be reading along with the child who was reading aloud. Close attention was paid to what was read aloud as if an effort was being made to confirm what was still unfamiliar, and to receive assistance for what was to be read next. Particular attention was given to those places where the reader made a mistake. After the reader had decided how he could clear his difficulty the child whose turn was next frequently said the correction along with the reader. Also, relevant suggestions from the group were repeated by both the reader and the child whose turn was next.

Three children in each of the groups seemed to be the ones most completely involved in the reading at any one moment. These were the child taking a turn, the one whose turn had just been finished and the one whose turn was next. These children often sat on the edge of their chairs and moved about excitedly. The rest of the group were also attentive but they appeared to be much more relaxed. They attended to what was read but were not under any pressure to indicate

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what they knew and did not know. It was from the rest of the group, rather than from the three children directly involved, that suggestions came which had been developed through comparing over a wide range of sentences.

23.5 Thus in reading the sentence: 'This is Mrs. Smith', there were exclamations of "No!" from immediate seating partners when the reader read "Mr". for 'Mrs'. Others in the group suggested: "This man is Mr. Smith", and pointed to the picture at the end of 23.1. Others suggested: "She is Mrs. Smith", which was the third sentence following the one being read. Only after the reader had pointed to the drawings of the man and the woman and to the two words 'Mr' and 'Mrs'. was a correct re-reading of the sentence made.

When there was a hesitation in reading 'Mrs.' in the sentence:
23.8 'Mrs. Smith is her name', the children who had difficulty with the word before were the first to suggest assistance and to point to the places where they had encountered the difficulty. But before the readers would accept the suggestions, each sought to confirm for himself that what was suggested would be helpful in his present difficulty.

The children in the group now seemed to recognize how new vocabulary could be apprehended by studying the varying sequences in order to see the meanings which they handled. Once a child had apprehended a new word he stressed the new word. In subsequent reading, each word on which he had laid stress was emphasized by the

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other children as well. Thus at each occurrence of the words 'name', 'she', 'her' and 'Mrs' on R 23, these words were emphasized.

Suggestions were not now immediately offered when a child hesitated in his reading. They allowed an interval for the reader to experiment and to confirm what the words were, before he began reading aloud. Thus in reading R 24, "His" was first tried for 'This', "there" for 'here' , "He" for 'His', "hand" for 'hat' and "The" for 'These'. The attention which the rest of the children in the group gave to this experimenting and their own speaking of the words at a barely audible level indicated that they were not completely sure of the words themselves. Once the words were spoken in their contexts, the children seemed ready to make suggestions.

In reading the sentences on R 25 the readers indicated an increasing tendency to recognize errors immediately. The children did not wait for suggestions to be made but made the corrections themselves or re-read the sentence correctly. Often suggestions came after the children had started to make corrections. This seemed to further confirm for the reader what he was doing. When a reader said a word that had not been met before or when the word came as a suggestion from the group, a number of children said the word aloud.

In their reading of the sentences, following the first introduction of a new word, the readers stressed the word, and it was often repeated by others in the group. There were marked variations in what the children in a group perceived of the word.

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Many accepted the word only insofar as it could be associated with the picture clue. Others seemed to recognize the word as it co-operated with other words in the sentence. Some of the children seemed to recognize the word according to its similarities and differences with other words in the sentence. In reading the
26.6 sentence: 'There are three trees', a number of the children accepted the word 'three' after they had counted the number of trees in the drawing. Others pointed to 'three' at 26.6 and 'a' in the previous sentence: 'This is a tree'. Others pointed to the three letters 'ree' in the two words 'three' and 'trees'. Only when the children had opportunities to discriminate in all these ways - and had demonstrated that they had done so - were the words definite to the point where they no longer caused errors and hesitations.

Through taking a turn, the child seemed to be forced to put the discriminations he had already made to a test. The suggestions from the group plus his own close examination of what he was doing seemed to point out when he was successful and what he had to do in order to read better. While he was listening to the other children reading he had opportunities to see how he could improve his discrimination and to test what he had learned by hearing his suggestions in relation with others. Further, by giving assistance to other readers he was able to make a direct application of what he had learned, towards something he had still to learn.

An examination of the suggestions made during the reading of 'Three rats and three rats and three rats are nine rats' plus an examination of previous reading done by the children

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making the suggestions provided numerous illustrations of something the children were doing when taking a turn and when participating as a "critic". Many of the children making suggestions had had difficulty in discriminating 'tree' and 'three' in previous oral reading. During that reading they had been directed to look at the drawings, to compare one sentence with another, to compare one word with another and to compare parts of words with parts of other words. In the suggestions they made while listening to others' oral reading, each of these directions for improving discriminations were tested. Thus 'three' was associated with a drawing of three things - either trees, seats or rats; one sentence could be read as pointing to three trees, the next sentence, although similar in structure, was pointing to three seats; the word was not 'these', although both words started the same way; and it was not 'tree', although both words ended the same way. The word seemed definite enough then for recognition and for the meanings it would have in varying contexts. This provided the ground for apprehending the new word 'nine'. The children seemed to recognize that groups of three things were being named and that all the drawings together represented a unit that could be named with a number. In all the groups most of the children pointed to the drawings and the word as they were read, a hesitation took place and numerous suggestions were made of the word 'nine'.

This success seemed to require testing and although each child in the eight groups had had an even number of turns the children asked to
27.4 let one child have another turn with the last sentence: 'These are nine rats'. The sentence was read correctly with stress on the word 'nine' and the children seemed to leave the study room quite

E satisfied with the work they had done.

Meeting No. 7 (Re-reading 26.6 - 27.4; New reading to 32.4)

Each group of children in the eight classrooms now seemed to be cooperating together as a unit. No direction had to be given to the children at the meeting in taking their places and each child took his turn at reading aloud without any prompting from the experimenter or from the members of the group. Further, there seemed to be a marked tendency now for extra assistance to be given to those children who were having more difficulty than the others in their reading. Thus, children who had missed a meeting or who made persistent errors were encouraged in their reading by the other children. Often when a child hesitated at a word which the group had seen a number of times no suggestions were made, but instead, statements were made as: "Donald doesn't know that word yet" or "Linda wasn't here last week".

When these children made prolonged hesitations, a number of children directed the readers' attention to the pictures, words or sentences that they could use as clues for recognizing the word. When the children said the word correctly there was often a further suggestion of the word by members of the group after the child had finished reading the sentence. This frequently prompted the child to re-read the sentence and stress the word or words that had caused difficulty.

A number of children in each group now read aloud with no errors and few hesitations. The rest of the group seemed to recognize these children's greater proficiency and listened closely whenever they read. On the sentence:'Here are nine men', four children who were increasingly more successful in their reading, stressed the word 'Here' in the
28.3 sentence. The next readers also stressed the word 'here' and also

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followed the previous readers' example of counting as a means of discovering the new word 'ten'.

But the children who were now having continual success could also be imperceptive in their reading and other children who were not apparently so successful could point out where the better readers
29.4 had misread. In the sentence: 'Those are his arms', the first word was read as "These" by a number of "better" readers. The speed of these children's reading had increased and this seemed to account for the introduction of a new letter and a new word catching them off guard. Other children in the group did not apparently know what the new word was, for no suggestions were made. But there were many who recognized that the word was not 'These' and either said so or made the exclamation "No!" after the sentence was read. No attempt was made by the children to correct their mistake, however, and they seemed to be satisfied that the word was 'These'.

The next appearance of the new letter 'o' was in the sentence
29.7 'That is one tree'. A number of children pointed to the letter both in the word 'one' and in the previous word 'Those'. There were marked hesitations at the new word and suggestions of "a" were rejected. At least one child in each group pointed to the three groups of pictures and then suggested the word "one". This was repeated by a number of children in the groups and the sentence was read correctly.

This direction of attention to the new letter seemed to provide for the apprehension of the word 'Those'. Some of the children
30.4 attempted to use 'These' again in the sentence: 'Those are his arms', but there were suggestions in all the groups of "Those" immediately

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after the child who was reading aloud finished his attempt to read the sentence. After a re-reading of the sentence was completed, the word 'There' was again said by a number of the children as if to reinforce what the new word was.

A change in the form of the suggestions occurred during the
30.5 reading of the sentence: 'His hat is not in his hand'. The readers hesitated at the word 'not' and some omitted the word. Instead of suggesting "not", there was a pointing to the picture and the readers seemed to immediately recognize what they had to do in order to read the sentence correctly. This mode of pointing out the error seemed
30.6 to facilitate the reading of: "It is on his head", for there were no hesitations at the new word 'on', and stress was put on the word in the oral reading.

31.3 Again, in the reading of: 'The seats are in a train', there were indications of changes in the form which the suggestions took. When hesitations took place at the words 'The seats' and no experimenting with the words was taking place, a number of children pointed to the preceding sentence and several read aloud: "The men are in the seats", emphasizing the last two words. These suggestions seemed sufficient to help the reader in his difficulties.

Person's names still puzzled the children and were the only points at which the experimenter's assistance was requested. A number of
32.1 children attempted to read: "This is a boy" for: 'This is Tom', but recognized that what they said was not correct. After the children were told that the boy's name was 'Tom' many said the name aloud. After this, there always seemed to be at least one child in every group

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who could recall the name in subsequent reading.

The children who suggested the name in later reading were those who had been making the most number of errors in the group before. Nor were the suggestions made by these children restricted to person's names. In four of the groups the suggestion of "one" during the reading of: 'This is one arm', where the word "a" had been substituted for 'one', came from children who were still making numerous hesitations in their oral reading. And it was again one of these children who seemed to recognize the contrast of 'one' and 'other' and made the
32.4 suggestion of the new word "other" in the sentence: 'That is the other arm'.

Meeting No. 8 (Re-reading 31.3 - 32.4; New reading to 36.6)

When a child who had been making numerous errors in his oral reading now made suggestions, there was at first only a tacit acceptance of his suggestions. As he decreased the number of his errors there seemed to be a greater readiness by the other children to accept his suggestions. Also, when a correct suggestion was made by one of these children and the children later confirmed that he had said the word correctly, this seemed to provide for a more ready acceptance of his later suggestions.

In re-reading: 'That is the other arm', the children who had suggested the new word 'other', in the previous meeting, suggested it again. The sentence was read correctly but hesitations and errors
33.4 occurred on the word until the two sentences: 'This is one ear' and
33.5 'This is the other ear' were read. At each of the points of errors and hesitations on the word, the children who had originally suggested

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the word again offered assistance. The confirmation of their suggestions on R 33 seemed to bring with it a more ready acceptance of later positive suggestions they made.

All the children who had been making numerous misapprehensions and hesitations in their reading during the previous meetings showed a marked improvement at the eighth meeting. The words 'This', These', 'The' and 'It' produced fewer hesitations now and these words seemed to be under control for the children in all of the groups. There was also a marked reduction in the amount of re-reading that took place after a sentence was read.

Rather than confirming what they had read by re-reading the sentence again, the children now seemed to confirm by studying the sequences that followed their oral reading. When a word was read on which they had hesitated before they often said the word aloud.

This increased attention to back-translation also served well
34.5 when vocabulary was met. The children who read: 'These are its teeth', did so correctly. When the children taking the next turn read: "These is a teeth", for: 'This is a tooth', the other children who had read the previous sentence said "No!" and, pointing to the previous sentence, said: "teeth". The children who had read incorrectly pointed to the word 'tooth', said the word, then re-read the sentence correctly. There were indications as well here that not only the configuration of the words and the semantic character of the two sentences were discriminated but also, by their pointing to the double vowels, the children indicated that they were discriminating between the phonemic character of the words.

Often these ways of apprehending new words were revealed in the discussion which the children had about a new word. In reading:

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35.2 'Here are their noses', the children compared the words 'their' with 'three'. Some said that: "It looks like three". Others pointed out, however, that: "It is not three" and a number pointed to the double vowels at the end of 'three'. In all the groups this discussion was sufficient to stimulate some children to say enthusiastically: "Here are their noses". In the reading that followed the new word was stressed.

Again, with the words 'room' and 'door' there was a comparison of the spoken and written form of the words. Most of the children pointed to the double vowels and emphasized in their speech the differences in the sounds of the two words.

During this meeting there was marked concern that what had been correctly read before should be read correctly on the next occasion. In addition to suggestions, the children showed a marked tendency to remind the reader that he should pay more attention to what the others were reading aloud. Typical of these reminders was the statement: "I didn't read the word like that here" which was spoken while the child pointed at the same time to his previous reading. This child then went on to read the group of words read before and then said: "I read it like that". Others in the group added to this the statements: "So did I".

There were two other common characteristics found in the protocols of this meeting. When suggestions were made in previous meetings, the readers often looked away from the sentence they were reading towards the group or towards the experimenter. There were no instances of looking away during the meeting; attention was continually fixed on the sentences of the presentation sheet. There was also an indication of a leader in each group at this meeting. This child was the one who now generally entered the study room first,

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who directed the children to their new seating arrangements when any had doubts as to where they were to sit, who gave most encouragement to children having difficulties and who arranged the group in rows at the end of the meeting and led them back to their classroom.

Meeting No. 9 (Re-reading 36.1 - 36.6; New reading to 41.6)

The difficulties which the C I children had encountered in the ninth meeting were not found with the same frequency in the reading done at this meeting by children in the E groups. The same possibilities for confusion and misapprehensions were present but the children doing reading in the groups seemed to be in a more favourable position for handling the difficulties when such arose.

At no time was there pressure on any one child to attempt to handle a number of difficult discriminations in a short sequence of time. When a child in a group took a turn, he was concerned only with a part of the entire task and could also rely on other members of the group to provide criticism and suggestions at those points which he found puzzling. After he had completed his turn he had opportunities to confirm what he had done by hearing other children taking up quite similar tasks and could prepare himself, as well, for his next turn.

37.1 A number of children attempted to read "He" for 'Here' in the sentence: 'Here is a man'. When they read the sentence this way, the group pointed out that 'Here' was not 'He'. A re-reading of the
37.6 sentence took place correctly then. The word 'his' in the sentence: 'His hat is in his hand', had caused some of the children to hesitate before they read the word correctly. In reading the sentence, stress was placed upon the word by the reader. When the sentence: 'Here is

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37.7 his son', was taken up, the children had only to be concerned with the new word 'son', the other points that might have caused problems were already brought under control. This restriction in the number of difficulties to be handled resulted in the children reading 'son' correctly. And the repetition of the word by the group after the child had said it, seemed to provide for a greater possibility that it would be recalled later.

37.2 Also the correct reading of 'He is not Mr. Smith' served to help the next reader to read 'another' correctly, in the sentence:

37.3 'He is another man'. A number of children in each group also recognized that the new word was made up of two words they had already met. The pointed to the two words in 'another' and spoke them distinctly.

Although assistance had to be given to the children for the word

37.4 'Read' in:'His name is Read', the boy's name 'Tom' was recalled by a number of children in each group. These successes extended to the reading done on R 38. The difficulties encountered by the C I

38.6 children in reading: 'Mrs. Read is Tom's mother';

38.7 'She is his mother' and

38.8 'He is her son'

did not seem to be difficulties for the E group children. There were a number of hesitations during the reading but with the assistance of the suggestions from the group each reader managed to read successfully.

During this reading and throughout the reading done during this meeting, there appeared to be a reduction in the number of suggestions that were made. A closer examination of the protocols showed that the

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child who had last read the word correctly was the first to make a suggestion when the word caused difficulty again. Their suggestions were generally correct, and the rest of the group seemed to immediately recognize this and therefore refrained from making their suggestions.

The children again had to be assisted with the new names 'Ted'
39.6 and 'Dan'. Only persons' names seemed to pose difficulties for which the children had to request assistance from the experimenter.

The groups indicated in reading the sentence: 'A store is in the street', that many of the children were taking the phonemic character of words increasingly into account. Most of the readers read the word 'store' correctly and pointed to the first two letters of 'store' and 'street'. Those children who read the new word as 'shop' were told "No!" by many of the members of their group. In the re-reading that followed, the word was read correctly. The immediate self-corrections that also were made when the children read "boots" for 'shoes' in the sentence: 'These are his shoes', indicated an increased recognition, by them, of how speech could correspond with its written notation and a recognition of how far that correspondence went.

Meeting No. 10 (Re-reading 41.1 - 41.6; New reading to 47.4)

The final meeting of the groups was marked principally by success for each of the readers. A rhythm in reading the various sentences was apparent. The children seemed to be listening closely not only to one reader but also to a number of the readers taking their turns. They revealed, in the stress placed on particular words, that they recognized how one sentence could be organically related to later sentences. Thus, in reading R 41, the word 'That' was stressed in

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the first sentence: 'That is Tom'. In the second sentence; 'He is in his room,' the first word was again stressed. The emphasis shifted then to the end of the sentence in: 'These are his shoes' and to the second word from the end in the following sentences: 'This is one shoe'; 'And this is the other shoe'.

New vocabulary presented little difficulty for the readers. There was often silent reading of a number of sentences in order to confirm what new words were. Before reading the words 'earth' in the sentence: 'This is the earth', the children indicated by their pointing to the trees and saying "on" that they had read the sentence: 'There are three trees on the earth'. Also: 'Its roots are in the earth' was read silently before reading 'These are its roots'.

The stress given by the readers to important words in the sentence seemed to provide considerable assistance for the next readers. Numerous examples of this assistance were indicated during the final meeting. An example was in reading: 'She and her son are here'. The word 'here' was stressed. In the next sentence: 'Mrs. Read and Tom are in this room' the word 'in' was stressed in the reading. This served to emphasize to the reader what he read in the final sentence: 'Mr. Read is not in the room.'

Often the suggestions and criticism made by the children about the reading that was done seemed rather harsh and at times even cruel. The readers seemed to be only bothered, however, up to the point where they recognized that the suggestions and the criticisms were justified. A number of children read 'Mrs. Read is a woman', as: "Mrs. Read is a man". This reading was greeted with laughter from the

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group. The reader looked embarrassed until he recognized his error, then joined in the laughter before re-reading the sentence.

These incidents seemed to further guarantee that the words would be recalled at a later time and also for helping in making discriminations. Because of the attention that had been given to the word 'woman' at 45.2 the children seemed to be able to quickly discriminate
46.2 the new word 'women' in the sentence: 'These are two women'.

During the ten meetings, there were occasions in a number of the groups, when one of the members was absent. At no time, however, was there any more than one child missing during a meeting. When a child re-joined his group after an absence, the rest of the group made allowance for this by giving the child assistance at those points in reading that had been taken up by the group during the child's absence. An examination of the oral reading done by children missing one meeting indicated that they recognized what the group was now doing and actively sought to make up for the lost time. When a child read a new word or a new structure, the child who had been absent frequently said the word or the sentence aloud and often pointed to the places he needed to study in order to "keep up" with his group.

(iii) Comparison of reading profiles of C I children and E groups.

Before describing the work done by the C II groups, it is necessary here to summarize the principal findings that were documented in the profiles of the ten meetings of the C I children and E groups. The extensive documentation pointed out many similarities in how the children were becoming aware of the meanings of written symbols. When the C I children and E groups first attempted to read the sentences before them, there was an immediate tacit acceptance that what was spoken about the picture was directly related with the printed symbols.

Their persistent use of the pattern:'This is a .....', indicated that this was a form which they could use as a starting point for handling much of the reading. When they met a new word that could be directly encompassed within the pattern, e.g., 'This is a hat', the children did not appear to have any difficulty. But the appearance of the new word in another position in the sentence seemed to be very baffling (e.g. 'This hat is his hat').

When the original pattern was altered, the children seemed reluctant to attempt any more words. Their reaction was to use the picture as a clue for the meaning of what was to be read and then to apply an alteration of the sentence around clues so that the old pattern could be used. Thus, 'It is his hand' was altered about the clues 'is' and 'hand' and the sentence was read:"This is a hand".

The errors that were made during the ten meetings of the C I children and E groups were primarily due to the children's attempts to read something that was not yet familiar to them. When they encountered something that posed a difficulty for them they reacted by searching for clues that might lead to the meanings of the words in juxtaposition with the picture. When too many difficulties were posed for the readers there was a request for assistance. But if certain clues were present, then the children attempted to read the sentence even if this entailed substitutions, omissions, insertions or the separation of the sentence into two parts.

The children were unable, during the beginning stages, to tackle more than one problem at a time. Their restricted attention to a new problem could also result in a failure to recall what had been read correctly before. The children in the E groups were also further encumbered in their initial attempts by the welter of irrelevant

suggestions that were bombarded at them.

The modes of dealing with problems that were found in the early meetings were the principal sources of errors in later meetings. The most common errors were substitutions of words in place of words that were new or were still not mastered. Often the child's quick guess at the beginning or the end of a word, e.g., 'hand' and 'head', was sufficient to cause an error. What was read immediately before was often used to handle a new difficulty in the next reading. This happened particularly when the new difficulty resembled, in part, the configuration of words read immediately before. Substitutions could also occur in which both the forms of the words and their meanings were used to circumvent a difficulty. Thus 'These' in the sentence: 'These are shirts', was substituted with "The shirts". When part of a word gave a clue to the meaning of the whole sentence another word similar in meaning could be substituted in its place. In the sentence: 'This is a man's head', the word 'man's' was substituted with "his" and 'a' was omitted. Finally, substitution could take place when the children did not attend to the correspondence of speech and its notation. Thus "chair" was substituted for 'seat' and "face" for 'head'.

All the children increasingly recognized that in making substitutions there was an incongruity between what was written and what was said. Nor? Until they had, in a measure, recognized what they were doing when they read correctly, did they indicate an awareness of their errors. Once they had done this, they requested assistance in order to clear difficulties that they had avoided before. The rejection of suggestions made in the E groups was also an indication of an awareness, by the

readers, that they knew in a measure, what they were doing and were as a result, searching for ways by which they could now do better in their reading.

By recognizing what had to be done, the children, in turn, seemed more able to recognize when they had been successful in their reading. Both the C I children and E groups emphasized their success by spontaneously re-reading the sentence. They also confirmed their success by pointing to the picture, to words of similar configuration and by saying aloud words that had caused difficulty. In the E groups there was an acceptance of the suggestion only when the reader could clearly see that they were relevant to his particular problem. This required time, however, and it was not only the third meeting that the group seemed to be any aid to its members in their learning.

By the third meeting, the children in the E groups had reached a point in handling the new tasks where they could give suggestions that were helpful and the reader was able to recognize the helpfulness of the suggestions. The group then seemed to protect the learner from facing too many problems at once. All that was needed in many cases was a reminder of what a word was. This reminder made possible the reader's increased attention to more difficult problems in the sentence. Further, by taking "turns", no child was continually under pressure to exhibit what he knew and did not know. By acting as a critic of others' reading he was given time to study, by watching and listening to others' efforts, what he was doing in his reading and what he would have to do later. When he took his turn then he had an opportunity to demonstrate what he could do and to receive criticism of his new efforts.

The group acted in other ways which seemed to be an aid to the member's learning. The suggestions forced the reader to examine what he had done and this frequently prompted a re-reading. When a child took his turn he seemed to be aware that suggestions would come from the group if he made errors. This prompted him to read parts of the sentences orally before attempting to read the whole sentence. It also prompted many of the readers to read the sentence silently before reading it aloud. The suggestions also prompted the reader to make comparisons and his attention was directed to where the comparing could take place. The pictures were often pointed to, or words of similar configuration were pointed out. The spoken words of another child were also another dimension in which comparing could take place. Finally, the groups encouraged attention to the reading by the rhythm with which some children read the sentences, by the stress particular words were given and by the stress put on particular points that had caused difficulty.

From the fourth meeting onwards, both the C I children and the E groups frequently re-read sentences spontaneously and stressed particular parts that had caused difficulty. Words and parts of words also were compared for similarities and differences in perceptual configuration. There was comparison too of the ways words in different contexts cooperated together to handle various meanings. As the number of meetings completed increased, there was a greater recognition of the phonemic correspondence of written and spoken words and an oral testing of how far the correspondence went.

Both the C I children and E groups also gradually extended the range of sentences with which comparing took place. Comparing took

place not only with the sentence read immediately before but with a number of previous sentences. Also in an increasing number of instances, before oral reading took place, there was a silent reading of sentences to be read later.

Both back-translation and extension beyond immediate reading were modes used by the children in order to apprehend new vocabulary. Picture clues were used extensively but only as aids for apprehending the meanings of the new words. Also the configuration of the new word was compared with the configuration of familiar words and phonemic clues were used, as well, as aids for apprehending the new vocabulary and in confirming new words.

Throughout the meetings, both the C I children and E groups evinced an increasing growth in not only perceiving words but in seeing what depended upon what and when and how. In this task, the group appeared to aid its members in their learning through the presence of a number of learners who increasingly recognized the common nature of the tasks in which they were all engaged.

As the number of meetings increased, there were changes in the form of forcing of attention employed by the children. When a child taking a turn made an error, the child who was the next reader was reluctant to start until the previous reading was done correctly. Also suggestions that had been originally given at the first indication of hesitation were replaced by suggestions that came only when errors were made in the reading of the full sentence. When the child taking a turn experimented with words with which he was not completely familiar the rest of the children did not interrupt his efforts.

The suggestions also took the form of printing out errors, coupled with an indication of the places where the reader might compare, in order

to clear the difficulty for himself. Suggestions were not only restricted to errors, however. At the conclusion of a correct reading, new vocabulary was spoken by members of the group and difficult words of the sentence were stressed. This often prompted a re-reading in which the particular parts were emphasized.

In their comparing, the children in the group were aided by having at least some of the group who were able to recall words and structures met previously. Their suggestions served to prompt a number of the members to recall what had been read previously. As the children increased their mastery of the task, there was an increasing recognition of what children in the group could be expected to do and where each had particular difficulties. All would contribute in various ways in the tasks. Some of the children recognized in the words and sentences certain important components that had not been noticed by other children. But the gradual mastery which each child in the group had, guaranteed that all the members made some contribution.

During the final meetings, there were indications of an awareness by the C I children and the E groups of the mutual dependence of not only the words in a sentence but of a number of sentences. The children indicated that by clearing a previous problem a present difficulty might also be cleared. Old difficulties also were cleared and confirmed in new contexts. For example, 'He is Tom' had been read as "He is a boy". In much later reading: 'This is Tom', was read correctly but in the next sentence: 'He is Tom', the word 'Tom' was stressed.

By the tenth meeting all the children in the E groups appeared to

be reading silently while one child was taking a turn. They continually confirmed what had been read previously and there was marked criticism when previous successes were not incorporated in the new reading.

During the ten meetings the C I children and the E groups had been engaged in much difficult reading. The task had been simplified in many ways, but it still presented a great number of difficult perceptual discriminations that the children had to make before they could master the printed symbols. Table IX indicates the number of different words and letters which had to be discriminated by the children during the ten meetings.

Only those words studied by <u>all</u> the C I children and the E groups during the ten meetings are included in these lists. The first two lists are picturable and non-picturable words. The third list is made up of words which Ogden (1932) has called "operations". These are the words in a sentence that put the others into significant relationships with one another. When a word is preceded by the letter 'p', that indicates that the children had to discriminate both singular and plural forms of the word. A word or a letter marked with an 'x' indicates that a capital form as well as a non-capital form had to be discriminated.

TABLE IX

WORDS AND LETTERS THAT HAD TO BE DISCRIMINATED BY C I CHILDREN AND E GROUPS DURING THE TEN MEETINGS

Picturable Words		Non-Picturable Words	"Operations"		Letters making up the Words	
p hat	p shoe	p name	is	other	x	a
p man	p star	p son	are	another		d
p hand	p rest	mother	in	not		e
p head	p woman	Mr.Smith	on	x his	x	h
p seat	p window	Mrs.Smith	x a	x her	x	i
p hair	train	Mr.Read	an	its		m
p arm	station	Mrs.Read	x the	x their		n
p car	room	Tom	x that	x here		o
p rat	door	Ted	x this	x there		r
p shirt	street	Dan	x these	one	x	s
p tree	store		x those	x two	x	t
p nose	earth		x he	x three		w
p tooth	moon		x she	nine		
			x it	ten		
			x and			

Number of picturable words in singular form = 26	Number of non-picturable words in singular form = 10	Number of "operations" in non-capital form = 29	Number of letters used to make up the words = 12
Number of picturable words in plural form = 18	Number of non-picturable words in plural form = 2	Number of "operations" in capital form = 17	
Total frequency of occurence of picturable words = 278	Total frequency of occurence of non-picturable words = 67	Total frequency of occurence of "operations" = 876	

As indicated in this table, the learners had to discriminate 56 words naming persons and things and 46 structure words or "operations". Non-picturable words occurred in a limited number in the task. The words occurring most frequently in the reading material were the "operations".

For each of the ten meetings participated in by 42 of the C I children mean number of errors made and not corrected were computed. Two classifications were made of the sources of these errors: "operations" and the names of things and persons. During the course of the ten meetings there was a higher proportion of errors made on "operations". With an increase or decrease in the number of errors on structure words there was a tendency for a corresponding increase or decrease in the errors made on the names of persons or things. Figure 5 presents in graphic form a profile of the mean number of errors made and not corrected by 42 C I children who took part in the ten meetings.

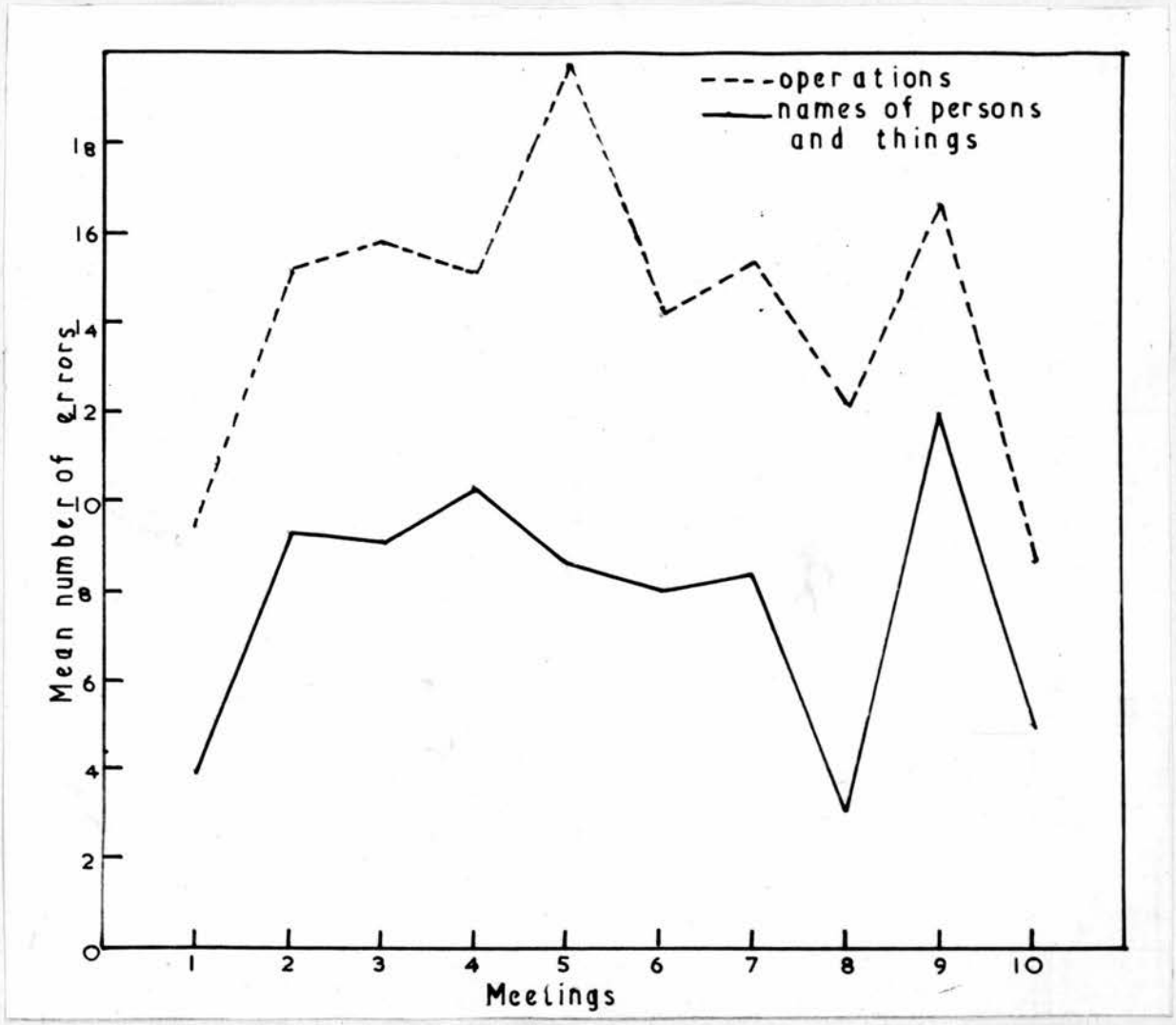


Figure 5

PROFILE OF MEAN NUMBER OF ERRORS MADE AND NOT CORRECTED BY C I CHILDREN DURING THE TEN MEETINGS (N = 42).

The small mean number of errors during the first meeting arose principally from the limited number of sentences read then and the limited structural formsthe children had to be concerned with. After meeting number 5, the children appeared to be gaining a greater mastery in their discriminations which resulted in marked success at meeting number eight. Their mastery was still not a power to handle the written symbols however, as the marked number of errors at meeting number nine indicated. They had been successful enough during the ten meetings to be able to end the experimental period with a sharp

reduction of errors.

This profile of the C I children's errors must be contrasted now with the profile of mean number of errors made and not corrected by E groups during the ten meetings. Figure 6 indicates this profile. The mean number of errors of children taking turns in the eight groups at each of the ten meetings are shown.

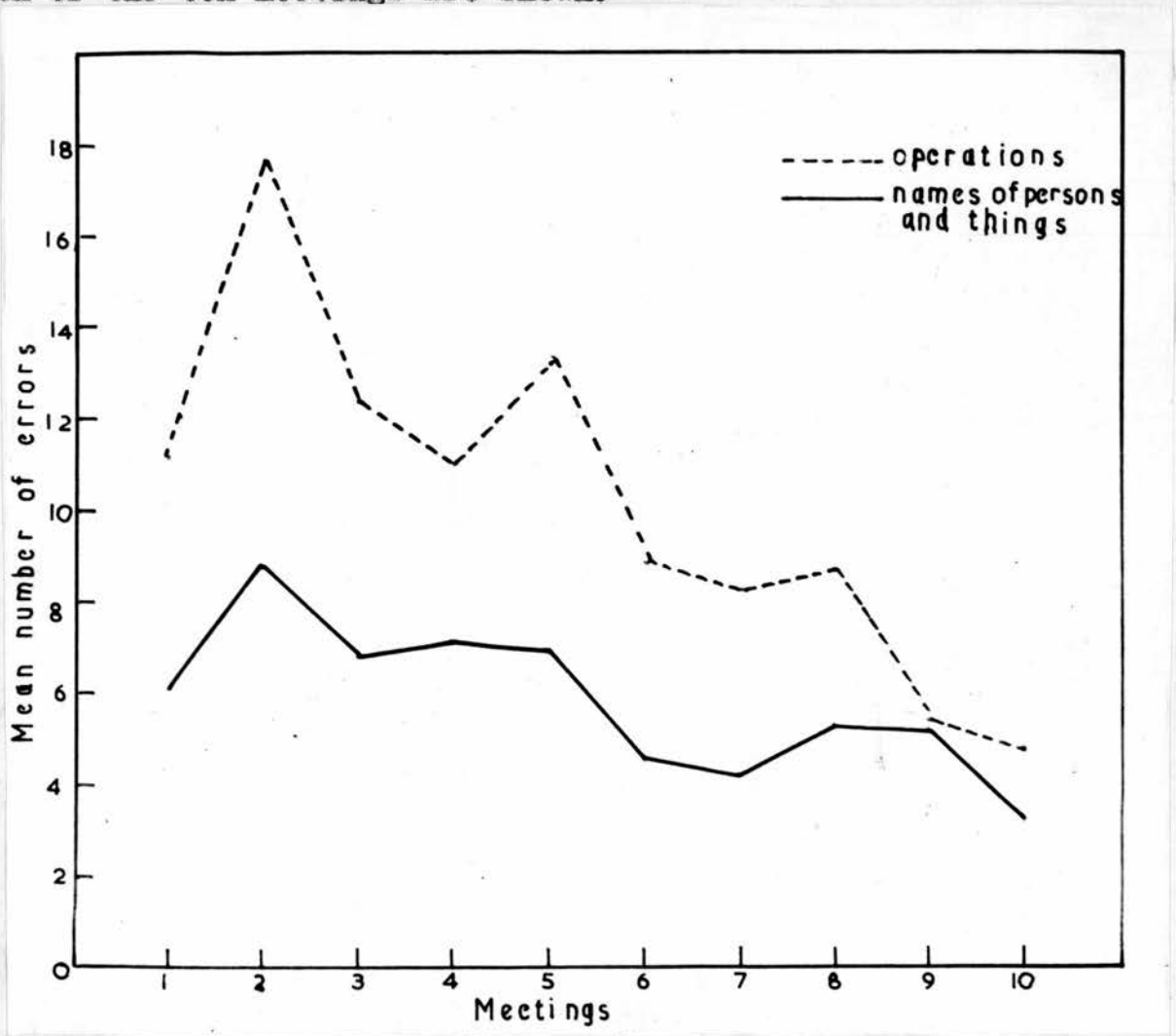


Figure 6

PROFILE OF MEAN NUMBER OF ERRORS MADE AND NOT CORRECTED BY E GROUPS DURING THE TEN MEETINGS (N = 8 GROUPS)

For the first two meetings there were more errors made by the E group children than the C I children. From meeting number three,

however, there was a progressive decline in the number of errors made and not corrected. Also at meeting number nine the children reading in the groups indicated a superiority over the C I children and at meeting number ten they decreased their errors even further. The profile given in Figure 6 also indicates that the most pronounced decrease in errors occurred on "operations" until at the last two meetings the mean number of errors of both classifications of words was almost equivalent.

Records for any one child in the E groups were restricted, to approximately four turns of oral reading at each meeting. Direct statistical comparisons with the C I children who had a continuous record of oral reading were thus impossible. Comparisons of the C I children and E groups' mastery of the reading material were possible, however, on the tests administered at the conclusion of the ten meetings. The first test was concerned with recognition of the words that had been studied during the ten meetings. Table X indicates the mean number of words responded to correctly by the C I children and children in the E groups. The table also indicates mean differences between the groups and t values of these mean differences.

TABLE X

MEAN NUMBER OF CORRECT RESPONSES BY C I CHILDREN AND CHILDREN FROM E GROUPS TO PRESENTATION OF INDIVIDUAL WORDS STUDIED DURING THE TEN MEETINGS.

		Mean No. of correct responses of C I children.	Mean No. of correct responses of children from E groups	Mean Differences	t values of mean differences
Names of persons and things	Singular No. of words = 36	27.52	30.55	3.03	5.76
	Plural No. of words = 20	15.55	16.38	.83	.92
"Operations"	Non-capital forms No. of words = 29	19.07	21.88	2.81	5.16
	Capital forms No. of words = 17	12	14.29	2.29	7.82

C I children: N = 42

Children from E groups: N = 42
(Original matching with C I children)

t - ratio probability levels: .05 = 2.02
.01 = 2.70
.001 = 3.55

As indicated in this table, the differences between the means were significant at above the .001 level of confidence, with the exception of one comparison. Plural forms of names of things seemed to be equally well mastered by both the C I children and E groups. The most frequent errors on plural forms were made by the children in the two groups on the words: 'names', 'sons', 'noses' and 'trees'. The errors occurred primarily through the children's failure to take account of the final consonant in the words. Errors on singular forms of names of things occurred most frequently on non-picturable words, for

example, 'son' and 'mother' and on the names of persons, for example, 'Ted' and 'Dan'. Words introduced during the later meetings, for example, 'earth', 'root' and 'store', were also common sources of errors.

The "operations": 'these', 'those', 'here', 'there', 'the', 'their', 'other', 'two', 'one' and 'nine' were most common sources of error. The E groups' superiority over the C I children was found particularly in their increased power to recognize these words both in capitalized and non-capitalized forms.

The first test given to the children at the end of the ten meetings only evaluated how well the children could respond orally when confronted with words presented in isolation from other words. The second test administered to the children examined the children's mastery of the words as these were used to handle different meanings. The test also examined how effectively the children had learned to discriminate how letters could be used in building words. The test used is given in Appendix II.

In scoring the test each blank space filled correctly was counted and total scores were then compared. The maximum score that could be made was 59. Scores on the test ranged from 52 to 24. The mean score of the C I children (N = 42) was 36.54 with a standard deviation about the mean of $\pm$ 5.06. The mean score of children from the E groups (N = 42) was 42.71 with a standard deviation about the mean of $\pm$ 5.05. The difference between the means was 6.17 which was found to be significantly different. The t value of the difference was 5.50; a value that indicated significance at better than the .001 level of confidence.

After the children had completed a sub-test they were asked to read the sentences they had placed on the blank spaces. When a child recognized an error had been made, he was allowed to make alterations. Records were kept of how the children worked at each of the sub-tests.

On the first five sub-tests there was an even distribution of scores of the two groups. The children used the whole context in making their selection and there was extensive comparing of whole sentences with other sentences, one picture with another picture and words and parts of words with words of both similar configuration and similar semantic characteristics. Although the C I children placed: 'That is a train; 'It is a train' and: 'The man is in the train'; 'He is in the train' in their correct blank spaces, both the words 'That' and 'The' were read orally as "This".

On sub-test six the word 'That' also caused difficulty to many of the C I children but to none of the children from the E groups. The latter children did confuse 'These' and 'Those' but most of them made corrections when reading the sentence aloud. The two words 'These' and 'Those' remained major sources of error for the C I children even though many succeeded in obtaining the correct location of 'That' in their oral reading.

The C I children appeared to be much more willing to leave a difficulty unsolved than the children from the E groups. If their first experimenting did not lead to success they either filled the blank with what seemed to them most plausible or else did not put anything in the blank space. The children from the E groups were more inclined to re-examine what they had done and to make revisions in their

work on the basis of later work. Thus in sub-test seven a high proportion of C I children failed to fill in 'nose' and 'These' in the sentences: 'This is a _____' and '_____ are teeth', while all the children from the E groups filled in the blanks. A number of children from the E groups had put 'hand' in place of 'nose', however. In later reading they went back to the sentence: 'This is a nose', made the correction and said the word aloud.

In sub-test eight both groups had difficulty with locating the correct blanks for 'in' and 'on'. Even when the word 'on' was put in the sentence: 'Men are____ the station', the children read the word as 'in'. Many of the C I children also left the space unfilled in the sentence: 'His hat is_____ on his head', and made no correction during their oral reading. The children from the E groups, who left the sentence blank, made corrections when they filled in the next sentence: 'It is on the seat'.

Sub-test nine presented most difficulties for the children. The C I children left more spaces empty than the children from the E groups. Many failed to recognize that certain of the blanks required two letters. The E group children also did not immediately recognize the nature of the task. Thus 'ears' was completed as 'ers' and 'seats' as 'sets'. When they came to the word 'stat___n', they pointed to the word 'station' in the second sentence and added two letters in the spaces that were presently occupying their attention. They went back then and corrected the word 'seats' and pointed to the word 'seat' in the final sentence. This range of comparing seemed to account for the superiority of the E group children over the C I children on this sub-test. They

also indicated a greater tendency than the C I children to try out letters, to read the sentence orally and to make corrections when needed, after the oral reading.

The comparisons made of the learning done by the C I children and the children from the E groups, that have been reported so far, indicate that the group had been an aid to its members in their learning. How a "group" can develop and certain of the ways by which children in groups learn from one another and aid each other in their learning have already been described.

In addition to the C I children and E groups, six children from each classroom met together once a week for a period of ten meetings. These children were taken from the classrooms and were heard taking turns at oral reading. This was done so that they might act as a control group to test the extent of influence on children's learning that might have accrued through special attention being given by someone other than the regular classroom teacher. The C II children were set a task of doing reading that corresponded closely with material which they used in their ordinary day-by-day reading programme.

The observations of the C II children as they worked together and the detailed examination of their work indicated that the group seemed to be of neglible assistance for the learners and at times a marked hindrance. At the conclusion of the ten meetings there was little evidence to justify calling any of six children from each classroom a "group". It is necessary here to attempt to point out through contrasts with the E groups, why such negative results occurred.

(iv) Comparisons of the work done by C II and E group children.

The reading task presented to the C II children was of a different sort from that presented to the E groups. Table XI indicates one aspect of the task. The different items that had to be discriminated are shown and their frequency of occurrence in the reading material is indicated. Words preceded by the letter "p" occurred in the material in both singular and plural forms. Words preceded by the letter 'x' occurred in the material in both capital and non-capital forms. The classification made in this table is similar to that used with the Richards-Gibson material in Table IX.

TABLE XI

DIFFERENT ITEMS THAT HAD TO BE DISCRIMINATED BY THE C II CHILDREN DURING THE TEN MEETINGS

Picturable Words (Names of things)	Non-picturable Words (Names of general things and persons)	Qualities	"Operations"				Letters	
p aeroplane	day	x big		can	saw	you	a	a x t
basket	Father	fast	x	come	x see	x he	x the	x b x u
p boot	home	good		did	skip	she	x this	x c v
can	Janet	x Little	x	fly	slide	x it		x d w
dog	John	red	x	go	walked	me		e y
p horse	Mother			had	want	us		x f
p Kitten	ride			has	went	x my		x g
puppy	top			is	will	what		x h
ship			x	jump	after	and		x i
slide			x	let	at	x here		x j
train				like	x down	there		x k
			x	look	in	very		x l
				may	of	too		x m
				play	on	x one		n
				ran	to	x two		x o
				ride	x up	x three		p
			x	run	with	Thank		x r
				said	I	Good-bye		x s
No. of picturable words in singular form = 11	No. of non-picturable words = 8	No. of words naming qualities (non-capital forms) = 5	No. of words naming operations (non-capital forms) = 57				No. of letters used to make up words = 23	

TABLE XI (CONT'D)

Number of picturable words in plural forms = 5 Total frequency of occurences of picturable words in the material read = 103	Total frequency of non-picturable words in the material read = 90	Number of words naming qualities (Capital forms) = 2 Total frequency of occurence of words naming qualities = 62	Number of words naming operations (capital forms) = 20 Total frequency of occurence of words naming operations = 651

The preceding table represents an analysis of the task which was set the C II children during the ten meetings. Other types of analyses could have been made of the task. Examination of the sentences read (given in Apendix III) suggests that many different orders of complexity were presented to the readers. Certain major differences in tasks presented to the E groups and C II children are pointed out, however, through comparison of Table IX (Richards-Gibson material) and Table XI (Nisbet material).

One difference was in the number of letters making up the different items to be discriminated. Only 12 different letters, with 5 of the letters appearing in both capital and non-capital forms, were used to make up the words in the Richards-Gibson material. This reduced number of letters guaranteed a high frequency of occasions for perceiving these letters and the control of the discriminability of the letters guaranteed that confusable letters would not encumber the learners' perceptual tasks. In the Nisbet material, 23 letters of the alphabet with 15 of these letters in both capital and non-capital forms were used to make up the words. The letters occurred in a multitude of combinations in words making up sentences with many meanings. The perceptual tasks of the C II children were thus much more complex than those of the E groups.

The tasks differed most markedly on the sorts of words used to make

up the sentences and the arrangement of those words in sentences. The E groups had to discriminate an approximately equal number of picturable words (in singular and plural forms) and words naming operations (in capital and non-capital forms). The frequency of occurrence of words naming operations - the structural words of the sentences - was much higher than with picturable words. Non-picturable words were kept to a minimum and there were no names of qualities used.

In the Nisbet material, on the other hand, there were only 11 picturable words, with 5 of these words in singular and plural forms. The bulk of the reading material was made up of 57 words naming operations with 20 of these words occurring in both capital and non-capital forms. Further, these words occurred with a frequency of 651 as compared with 876 occurrences of the 46 words naming operations in the Richards-Gibson material. There was a limited number of non-picturable words of names of persons and things - a number comparable to the Richards-Gibson material- but the C II children had also to be concerned with five names of qualities with two of the words occurring in both capital and non-capital forms.

Examination of the sort of sentences set before the C II children to read, indicates the general regard of the designers for the meaning of what was to be read. One example of this occurred with the words 'can' and 'ride'. Both these words had to be listed twice in the analysis made in Table XI. In the sentence: 'I can jump down' (N 25.3), the word 'can' was used to name an operation. The word also appeared in the sentence: 'See Janet and the can', in which it was used to name a thing. It was not used in this way during any of the rest of the reading. The

word 'ride' appeared first naming an operation in the sentence: 'Come and ride' (N 58.2), and was used later to name a non-picturable thing in the sentence: 'I want a ride too' (N 59.3).

The protocols of the C II children's reading were first analysed according to the number of errors made on words naming operations and words for names of persons, things and qualities. In counting the number of errors, only those that were made and not corrected were included in the totals. Also when the readers had to be helped by the experimenter after there had been a request for assistance, that point was also classified as an error. The total errors made by six children at each of the ten meetings in the eight classrooms were first calculated. These totals were then divided by eight in order to obtain the mean group errors made at each meeting. Figure 7 shows the profile of these mean errors.

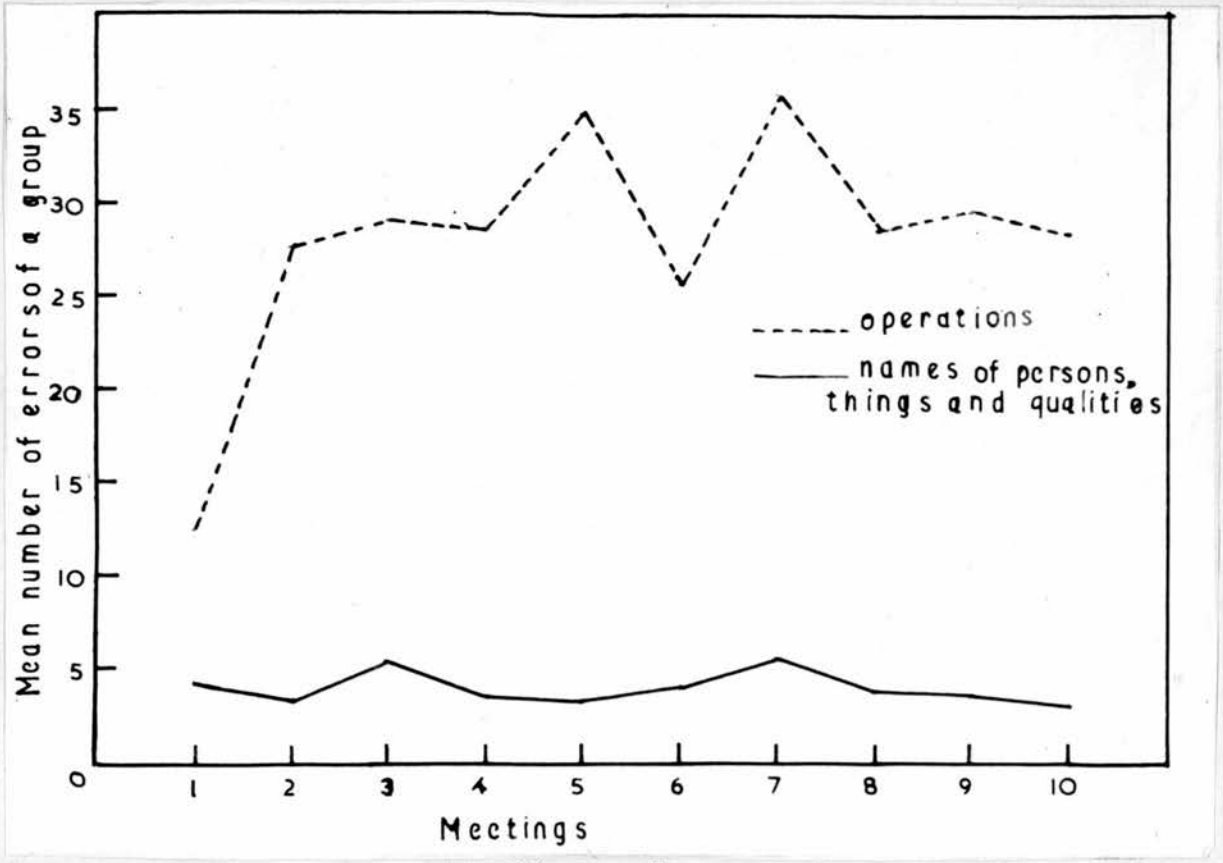


Figure 7

PROFILE OF MEAN NUMBER OF ERRORS MADE AND NOT CORRECTED BY C II GROUPS DURING THE TEN MEETINGS (N = 8 GROUPS)

This profile indicates that the principal source of error was on words naming operations. There was a limited number of names of operations in the reading material during the first meeting. The highest number of errors occurred at meeting number five and number seven. Little general improvement over the ten meetings is shown in the profile. This lack of a reduction in errors was also seen in the words for names of persons, things and qualities. The profile shown in Figure 7 is markedly different to that of the profile of errors made and not corrected by the E groups (Figure 6). In the E groups' reading there was a progressive decline in the number of errors from meeting number two.

The second analysis of the protocols of the C II children was concerned with an attempt to discover the principal kinds of errors. The analysis indicated that during the early meetings many of the modes of dealing with difficulties used by the C II children were similar to those used by the children in the E groups. What seemed to differentiate the C II children was that faulty modes continued to persist throughout the ten meetings. In attempting to read what was printed on the presentation sheet, the children were faced with words exhibiting certain discriminable features. The children had to make decisions about what the words were. In making decisions various cues were employed. Many cues employed led to correct apprehension of the words. Other cues led to errors being made. The principal kinds of errors are detailed in the following analysis.

(a) Use of the beginning letter of a word as the only cue for recognition. Errors caused by this mode occurred most frequently when a new word was introduced into the reading material. The new word seemed to be the

focus of the children's attention and other words that began with the same letter were read as the new word. One typical example of these errors occurred during the reading of the sentences:

See the aeroplane fly (N 49.2)
The aeroplane can fly fast (N 49.3)
Fly fast big aeroplane (N 49.4)

The children had to be assisted here with the new word 'fly'. The next two readers read 'fast' as "fly" even though the total configuration of the two words were dissimilar.

(b) Use of the beginning and ends of words as cues.

When words had the same beginnings and ends these were used as cues by the children to recognize the words. But until such time as there had been a wide range of opportunities for the children to validate the correctness of their perception, these modes could result in many errors. Thus "want" was read for 'went' in the sentence: 'John went up the slide (N 53.1); "run" was read for 'ran' in the sentence: "John ran up" (N 59.1) and even "boat" was read for 'basket' in the sentence: 'Look at the basket' (N 42.2).

(c) Use of picture and partial context cues for the meanings.

These were the most common sources of errors. The children seemed to recognize certain words in the sentence while other words were unfamiliar. They avoided the problem thus produced by substituting another word for the difficult word in such a way that the sentence seemed to be read correctly. Thus 'Come little dog' (N 9.1) was read as: "Run little dog" and 'Look down' (N 14.3) was read as: "Look here".

(d) Use of pictures, partial context cues and preceding contexts.

The particular word which was selected as a substitute for the

unfamiliar word seemed to have to fulfil certain criteria. It had first to be able to cooperate with the other words that were already familiar in the sentence. The word used as a substitution for the difficult word had also to relate to the meanings ostensibly signified by the picture. These requirements prompted the children to scan previous sentences for cues for words to use as substitutes. When a word or group of words was found that could be fitted into the sentence in which difficulty was occurring, the substitution was made by direct transposition. One example of this mode of dealing with difficulties occurred when the children transposed the first two words of the sentence: 'See the kittens Janet' (N 19.3), to take the place of the word 'One' in the next sentence; 'One little kitten' (N 19.4). Direct substitutions were not always possible, however. In these cases the sentence being read was altered, either by additions or omissions of words-or both-in order to fit in words in place of the difficult word. Thus 'See the aeroplane come down' (N 51.3) was read as: "Look at the aeroplane come down"; 'I see two kittens' (N 20.1) was read as: "See the two kittens" and 'I can jump down' (N 29.1) was read as: "See me jump down".

(e) Use of previous readers' success as cues.

When a child completed a turn successfully this seemed to invite other readers to directly copy those points at which he had gained success. For example, a turn for one child entailed only the reading of the word 'Run' (N 11.1). The next reader directly borrowed from this success to read: 'Run, little dog' (N 11.2), as: "Run, run, run". Also, the success of previous readers with the word 'up' and the sentence: 'Come here' (N 16.1), prompted the children reading: 'Come and see' (N 16.2), to read

the sentence as: "Come up here"; and later the sentence: 'Janet, look' (N 16.4), was read as: "Janet, come and look".

(f) Use of phonetic cues at inappropriate places.

Most of these errors occurred during the early meetings. When new vocabulary was encountered, the children attempted to sound the words out phonetically. Since a high proportion of the words were not phonemically spelled, there was little success in this mode of attack. When the children failed in these attempts (e.g., with the word 'This'), they were reluctant to attempt any other modes of clearing the difficulty. Also their failures made them reluctant to make later attempts with other words that could have been treated phonetically.

There were few instances of errors arising from reversals. The only indications occurred when 'day' was read as "pay", 'big' was read as "pig" and 'day' was read as "play".

For most of the errors made during the reading, the C II children did not seem to be concerned with the fact that they had read incorrectly. As each child took his turn, his main objective seemed to be to read aloud something that pertained in some way to the picture. From the first meeting to the end of the experiment the reader frequently failed to recognize the incongruity between what was read aloud and what was written in the presentation sheet. Suggestions came from others in the group only at the places where the reader hesitated. These suggestions were often not directly relevant to the readers difficulties. The suggestions did not force the reader to attend to the words to be read and there were few instances of spontaneous re-reading.

This lack of attention to what was being read resulted in difficulties being left unresolved. As the material increased in complexity so, in turn, did the number of hesitations increase at points of difficulty which had been avoided earlier. For many of the children in each group the number of problems had become so extensive that the other children's suggestions were insufficient to cope with the problem. Rather than relying on their own powers to deal with the difficulties or on the suggestions from the other children, the readers tended to rely more and more on the experimenter for assistance.

The number of requests made to the experimenter for assistance were computed for the ten meetings of the C II children and the E groups. The mean number of these requests is indicated for the ten meetings in Figure 7

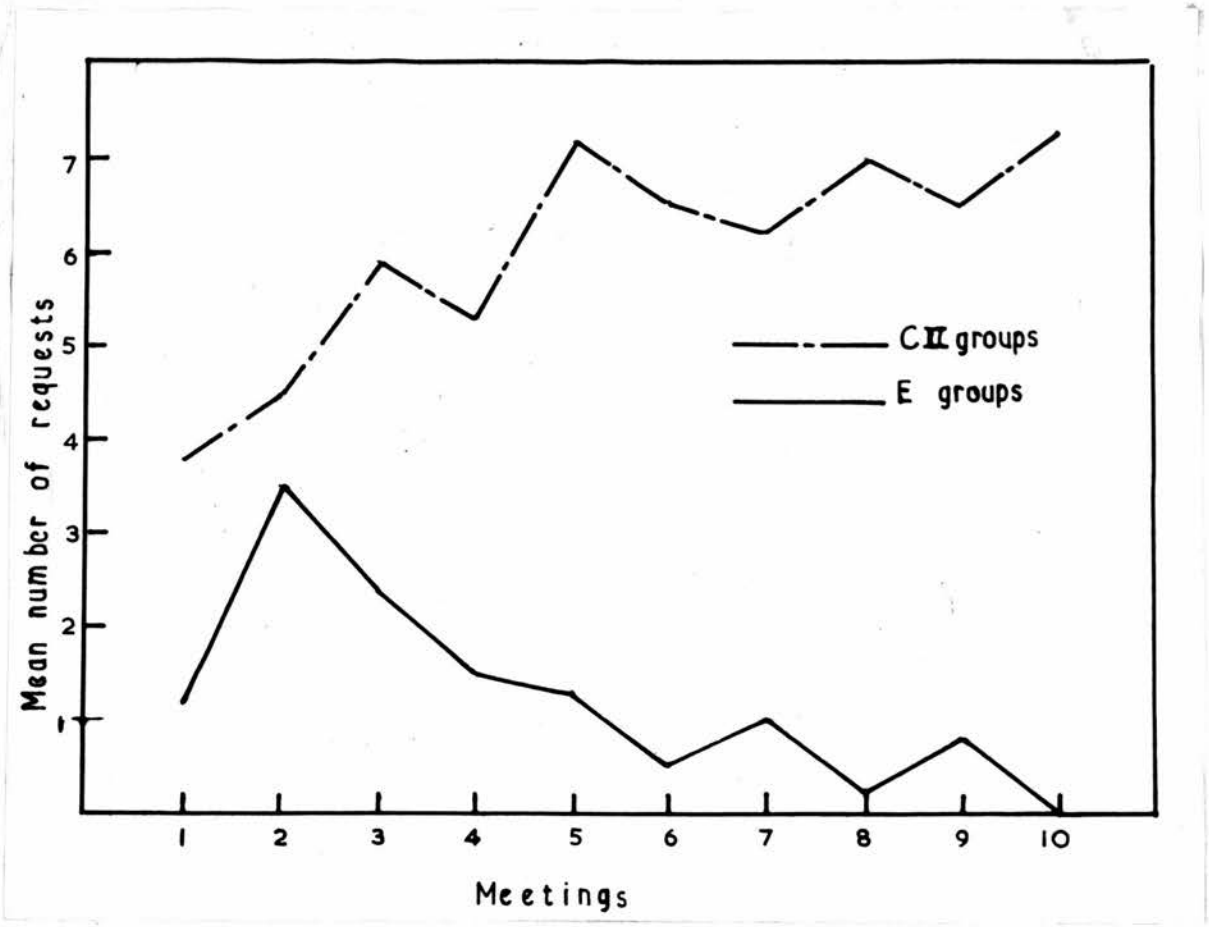


Figure 8.

PROFILES OF MEAN NUMBER OF REQUESTS FOR ASSISTANCE MADE BY CHILDREN IN C II AND E GROUPS.

As the Nisbet material increased in complexity of structure and vocabulary there was a gradual increase in the number of requests for assistance by the C II children. In contrast, as the Richards - Gibson material increased in complexity, there was a gradual decline in the number of requests for assistance made by the E group.

One of the principal reasons for these differences seemed to stem from the limited range of words and sentences that could be compared, by the C II children, on any one presentation sheet.

Further, what words were found on each sheet were not arranged in any way to invite comparisons of likenesses and differences. The children attempted to compare one sentence with another but seemed to have marked difficulty in distinguishing what particular meanings the sentences were handling. When suggestions were offered, the picture was often pointed to. This pointing often assisted the reader with a picturable word which was causing difficulty, but the pointing seemed to suggest too many meanings for words naming operations. The variety of positions which words naming operations could have in a sentence, and their equally varied meanings seemed to restrict the groups in pointing to individual words in making their suggestions. The words causing difficulty could appear on the same presentation sheet but still not provoke the children to point out the similarities.

The attention of the groups seemed centred principally on the picture. Each new presentation sheet was greeted with enthusiasm - an enthusiasm for the episode in the picture rather than the accompanying sentences. The amount of detail in the picture seemed to stimulate the children to the point where their attention was distracted from the sentences to be read. Often comments about the picture bore no resemblance to the text. One example of this occurred during the reading of the sixteenth presentation sheet. In the picture there was a boy and a girl supposedly looking at an aeroplane in the sky. The boy was standing on a garden bench holding a toy aeroplane. The girl was holding a small dog in her

arms. In each of the groups this picture elicited comments that bore little resemblance to the text which was:

Come here.

Come and see.

See the aeroplane.

Janet look.

Up, up, up.

Many of the children commented about the little dog. Typical of these comments was: "The wee dog's scared". Others were puzzled as to why the boy was standing on the bench and also what he had in his hand. With all these comments, it was not unexpected that the children taking turns at the first sentence had to request assistance on both words.

Throughout the ten meetings, there were few instances in which the children experimented with difficult words before the sentences were read aloud. Silent reading occasionally seemed to be taking place but in later oral reading, it was apparent that numerous errors had been made in that silent reading. The form of the suggestions remained the same throughout the ten meetings. When a child hesitated in his oral reading, suggestions, when they were made, came immediately. No general pattern as to why some suggestions were accepted rather than others could be found in the protocols. Acceptance varied from that of taking the first suggestion through to a rejection of all the suggestions until made by a specific person.

The reliance on the experimenter for assistance undoubtedly had its effect on the lack of the C II children's development into

co-operative groups. Much time had to be spent in questioning and with reference back to previous reading in order to help the readers. During the time spent by the experimenter in helping the children taking turns, there was a tendency for the rest of the children to become restless. Once the reader had been helped it was often necessary to indicate which child was to read next.

At each meeting there were children who were more successful than others in the reading task. These children seemed more able to recognize words and to recall words from previous reading. A proportion of each of the C II groups, in turn, appeared to have great difficulty in recognizing almost every word they attempted to read. During the early meetings, suggestions were offered at each point of difficulty. Often the suggestions accepted were such as to encourage the reader to circumvent his problems. When he encountered difficulty again on the same words as before, the rest of the children seemed increasingly more reluctant to offer suggestions. Each turn for the "slower" reader seemed something of an ordeal and once they had finished their turn they offered few suggestions and seemed only concerned with their own reading.

The number of children offering at least one suggestion during a meeting was totalled for the C II children and E groups. Percentages of the number of children offering suggestions were then computed for each meeting. Figure 8 indicates the profile of these percentages during the ten meetings.

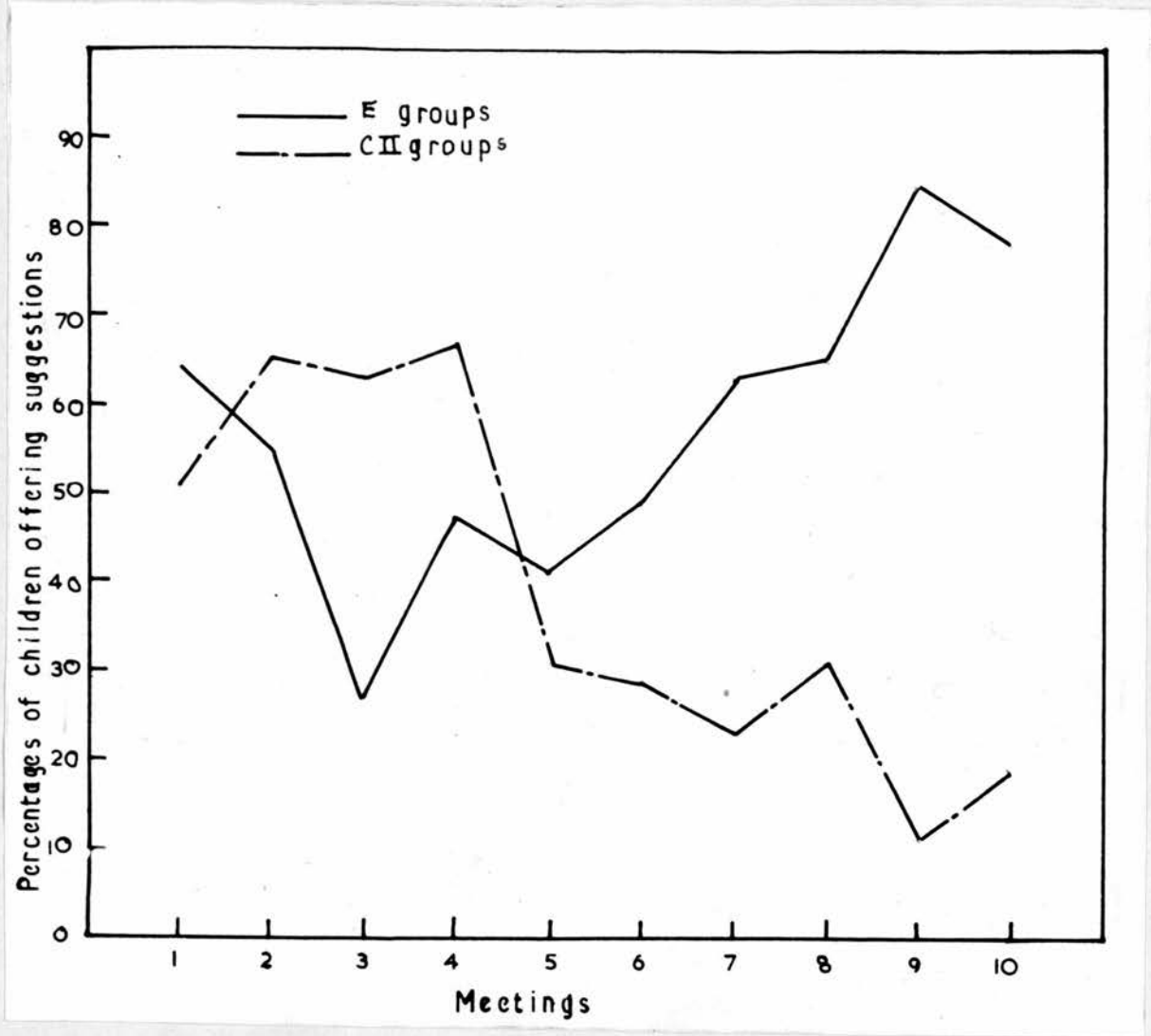


Figure 9.

PROFILES OF THE PERCENTAGES OF THE CHILDREN IN C II AND E GROUPS WHO OFFERED SUGGESTIONS DURING THE TEN MEETINGS.

These two profiles indicate differences between the E group and the C II children. During the first two meetings suggestions were made by a considerable proportion of the children in each group. As pointed out already, many of the suggestions were not accepted and were frequently irrelevant to the reader's difficulty. In the E.

group's profile there was a sharp decline in the percentage of children making suggestions at the third meeting. This was due to the children beginning to take account of what they were doing as they read orally. As the E group gained a greater mastery in handling the printed symbols there was a gradual increase in the percentage of children offering suggestions. On the other hand, a high proportion of C II children offered suggestions up to the fifth meeting. From then on there was a tendency for the percentages to decline.

The C II children were set a task that was of a similar sort to that which they worked with in their daily school programmes. Many of the children were already considered by the teacher to be "good" readers while others were considered to be "average" and "slow". At the meetings, the "good" readers were the children most successful in reading the Nisbet material. The children who had most difficulty in their daily programme also were the ones who had most difficulty during the ten meetings. A direct transfer seemed to have taken place to the new situation and weighed against the emergence of a new group.

At each of the ten meetings, it was necessary to call out each one of the C II children's names to come to the study room. It was also necessary to direct the children to their new seating arrangement at each meeting. A number of the children in each group indicated a reluctance to change their seating partners. Even though they accepted new partners for a meeting, when they went to the classroom they walked with those children whom they had originally selected as

seating partners at the first meeting.

The children taking part in the E groups had also been considered by the teachers at the beginning of the experiment to be "good", "average" or "slow" readers. The task presented to them was of a different sort than that which they worked with in their daily programmes. As indicated in the protocols, the E groups did develop characteristics of working together that indicated that "groups" had emerged. Further, at the end of the experiment when the teachers were asked to comment on the progress of the children, all maintained that the children in the E groups had shown marked improvement during the ten weeks. One teacher claimed that certain children who had taken part in the E groups were now no longer "slow" readers but had "crossed the Rubicon" and were showing daily gains in reading.

(c) Final Phase of the Investigation.

In order to see if there had been a transfer to other learning and to test the extent of influence of special attention to the experimental and control groups, scores made on the second administration of the Gates and Schonell tests were compared. In addition to comparisons of the scores of C I children, E groups and C II children, another set of scores was compared. These scores were made by children who had not taken part in either the experimental or control groups. Their scores on their first tests were matched with initial scores made by children who took part in the ten-week experiment.

In the comparisons, these children are referred to by the code C III. Table XII indicates the means and standard deviations about the means of composite scores made by 42 children in the four groups compared on the second administration of the Gates-Schonell tests.

TABLE XII

MEANS AND STANDARD DEVIATIONS OF COMPOSITE SCORES ON SECOND ADMINISTRATION OF GATES AND SCHONELL TESTS

Groups (N = 42 in each group)	Mean Scores	Standard Deviation
E	69.02	± 12.34
C I	62.71	± 12.
C II	56.76	± 15.05
C III	53.43	± 11.97

The mean differences between groups were tested for statistical significance. Table XIII indicates the mean differences of the groups compared and t value of these mean differences.

TABLE XIII

MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES OF GROUPS COMPARED ON THE GATES AND SCHONELL TESTS.

Groups Compared	Mean Difference	t Value of Mean Difference
E vs. C I	6.31	2.34
E vs. C II	12.26	4.02
E vs. C III	15.59	5.77
C I vs C II	5.95	1.97
C I vs. C III	9.28	3.49
C II vs. C III	3.33	1.11

N = 42 children in each group

t - ratio probability levels:
.05 = 1.99
.01 = 2.64
.001 = 3.45

The comparison of the mean scores of the C II and C III children indicated that, on the criterion of the Gates and Schonell tests, the increased attention given to the C II children had not resulted in their attainment of significantly different scores from the children who had not taken part in the experiment nor was there a significant difference found between the mean scores of the C I children and C II children. The significant difference of the mean scores of the C I and C III children suggested, however, that the study of reading material of a special sort during ten weekly meetings could have a salutary effect on the C I childrens' handling of the tasks set for them on the Gates and Schonell test items. The extent of the effect appeared to be also related to the conditions under which the reading of the Richards-Gibson material took place. This was emphasized by the finding that the mean score of the children from the E groups was significantly higher than the mean scores of the other groups of children.

Since the Gates and Schonell tests were administered individually there were many opportunities for seeing how the children tackled the various test items. These observations, when related to the test outcomes, suggested certain factors that seemed to account for the higher mean scores of children from the E groups.

Throughout the two tests, the E group children seemed less inclined than the other children to say "I don't know" when faced with a test item for which they did not have a ready solution. They indicated a greater tendency to experiment, to study what was before them, to point to different parts of the word that had to be discriminated and to attempt to confirm their decisions.

The E group children required an average of eight minutes more than the average time taken by the C II and C III children to complete the two tests. The C I children also took longer to complete the two tests.

The extra time taken by the C I children was, however, only an average of three minutes more than the average time taken by the other ten control groups. The C II and C III children required approximately the same time to complete the two tests.

Part of the extra time required by the E group children and C I children was due to the extra attention they gave to each test item. They also attempted to do more of the test items than the other two groups. Figure 10 indicates the percentages of items attempted by 42 children in each of the four groups. These percentages were obtained by making a total of the number of items attempted by all members of a group. This total was then divided by the total number of items that could have been attempted by a group.

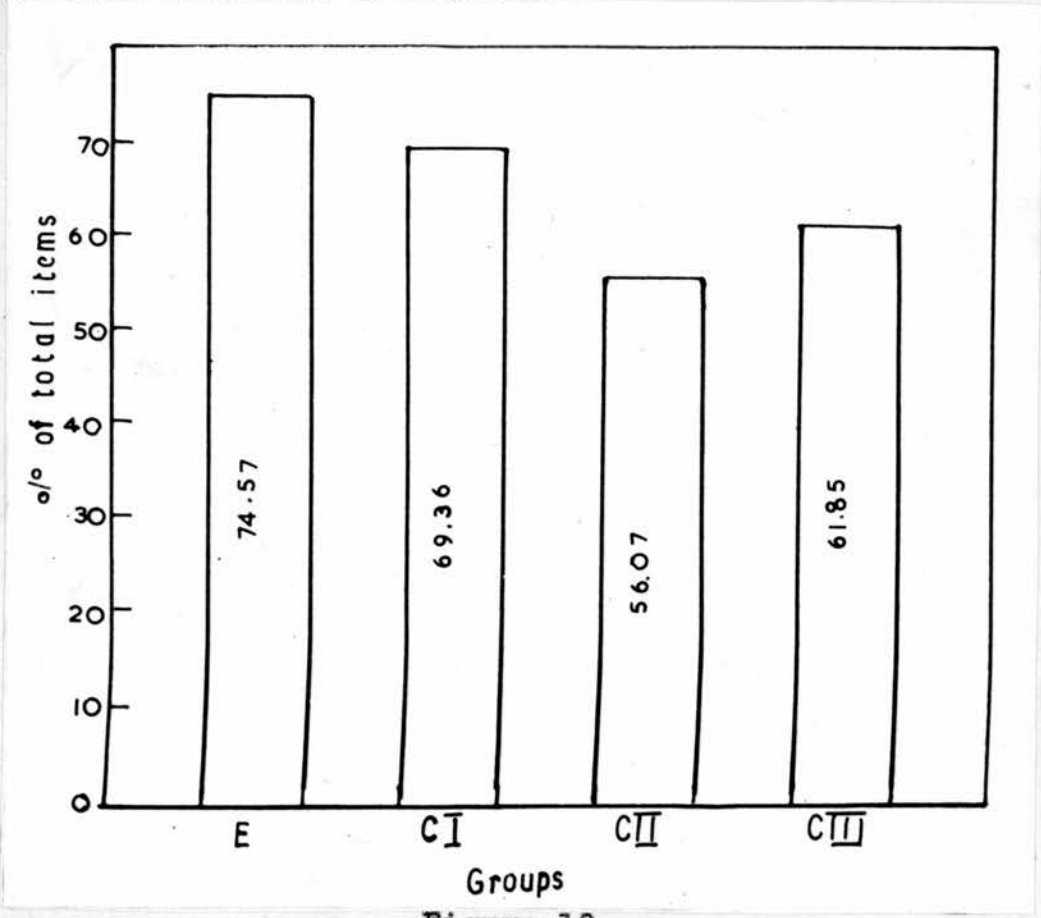


Figure 10

PERCENTAGES OF ITEMS ATTEMPTED ON COMBINED GATES AND SCHONELL TESTS

These percentages indicate that the E group children attempted to do more test items that any of the other children. The fact that they attempted more items - and got more of these correct - suggested that the modes of tackling the items that the E groups used were more efficacious than the modes used by the other children. The test items on the two tests demanded an extensive number of difficult perceptual discriminations to be made. There were few words that the E group children had studied in reading the Richards-Gibson material. The children seemed to be considerably aided, however, through their mastery of twelve letters of the alphabet that had been used to make up the words in the sentences which they had read during the ten meetings. The extensive practice that had been given on these letters during the experiment seemed to provide the children with familiar cues by which they could order and master new tasks.

On sub-test five of the Gates test the children were asked to name the letters of the alphabet. The E group children made no errors on the letters: a, d, e, h, i, m, n, o, r, s, t, and w. The C I children had a mean number of 2 errors on these letters while the C II children had a mean number of 7 errors and the C III children a mean number of 5 errors.

Each of the words that had to be discriminated on the other test items had at least one of the twelve letters as part of the total configuration. The E group children appeared to focus their attention on the familiar letters and used these as cues towards discriminating the whole. For example, the children were required in sub-test two of the Gates test to match the two similar words in the test item:

baby tail

goat baby

The E group children pointed to the letter 'a' in each of the words and then to the beginnings and ends of the words. Some of the children also pointed to the letters 't', 'i' and 'o' before drawing a line to join the two similar words.

Also, the order of the familiar letters in a word seemed to be perceived by the E groups and this perception was used to help them in their discriminations and in confirming what they had done. In sub-test three of the Gates test, for example, the word 'grass' was exposed before the children and they were then asked to find the word in the series: gate, gave, grass, gone. The children pointed to each of the words until they came to the word 'grass'. They then drew their finger under the last four letters of the word, then pointed to the last word in the series and finally circled the correct word.

On Test R 6 of Schonell's test for directional attack on words, the E group children made no reversals of those letters which they had worked with in reading the Richards-Gibson material. The C I children were successful in doing this as well. The children in the other two control groups evinced a wide number and variety of reversals in responding to these words.

Test R 7 was designed by Schonell to test visual word discrimination. The E group children again exhibited a tendency to focus their attention on familiar letters among the words presented to them and on the order in which those letters occurred in the word. When they tackled a series of words they examined each word according to its likenesses and

differences with the word presented to them on the flash card. Thus, the children were shown the word 'thread' and were asked to find the word in the series: thred, thraed, threat, threed, thread, threard. Each word was pointed to until the correct word was reached. The children drew their fingers under the last four letters and also under the last four letters of the preceding word. They also pointed to the final 'r' in the last word of the series then went back to draw a line under the correct word.

These same modes of pointing to words and parts of words, and of comparing one word with another were used by the C I children as well. They tended, however, to be more easily confused when slight differences had to be distinguished and also tended to disregard the final letter in a word if the rest of the configuration was similar to the word presented to them on the flash card. For example, the word 'said' had to be found in the series: siad, sed, saide, saed, said, sad. Over three-quarters of the C I children selected 'saide' as the word required whereas the E group children made no errors on this item.

It was difficult to distinguish any one particular mode the C II and C III children employed in handling the various test items. They were concerned particularly with certain letters in the total configuration, but they seemed to fail to take account of the order in which the letters occurred. They also seemed to employ a limited number of letters on which they focussed their attention beyond the beginnings and the ends of the words. Two of these letters were the most any one child pointed to continually in the test items. When these apparently familiar letters did not appear in the words, the children tended to rely on the beginnings

and endings of the words as primary cues for making their discriminations. Finally, the C II and C III children did less experimenting and confirming as they worked on the tests. Once they had made a decision as to what they took the correct answer to be, they did not pursue the task further even though other items in a series might have indicated whether their decision was successful or not.

The second administration of the Gates and Schonell tests indicated that the sort of learning done by the E group children - and also to a large extent by the C I children - had made a difference in how the children tackled other tasks concerned with printed symbols. The extensive study they had been invited to do of a limited number of letters and that are easily confused was used by the children to help them to keep other tasks in order.

It is now necessary to turn to the last test administered to the children. This test was concerned with examining the hypothesis that the kind of reading the C I children and E groups had been invited to do, would make a difference in the ways they ordered their speech and their writing.

The technique of asking the children to tell what they had put into their drawings of the classroom worked particularly well in securing an extensive number of records of children's speech. With the exception of 3 drawings out of a total of 598 made on the two test occasions, all the children attempted to make some kind of a representation of their classroom and evinced an enthusiasm in telling what they put into the drawings. One of the three drawings consisted only of a series of scribbles and was made by a child who was classified as a "mental

defective" by the teacher. Two of the drawings were copies of work done in previous lessons. These children had apparently failed to understand the test directions on both occasions. The descriptions these three children made of their drawings were not included in the analysis of the children's speech.

Six children who had made drawings on the first occasion were absent during the second test. There were 302 drawings made on the first occasion and 296 second drawings obtained at the end of the ten week experiment. As stated above, 3 of these drawings could not be used. The 293 children made a total of 3279 utterances about their drawings on the first occasion and 4002 utterances on the second occasion.

The criterion used for classifying a unit of speech as an "utterance" was taken from that adopted by comparative linguists (Fries, 1952: pp. 21 - 20). For a unit of the children's speech to be called an utterance there had to be a stretch of speech before which there was a period of silence. Also there had to be a shift in what the children were pointing to in their drawings before the unit of speech was classified as an utterance.

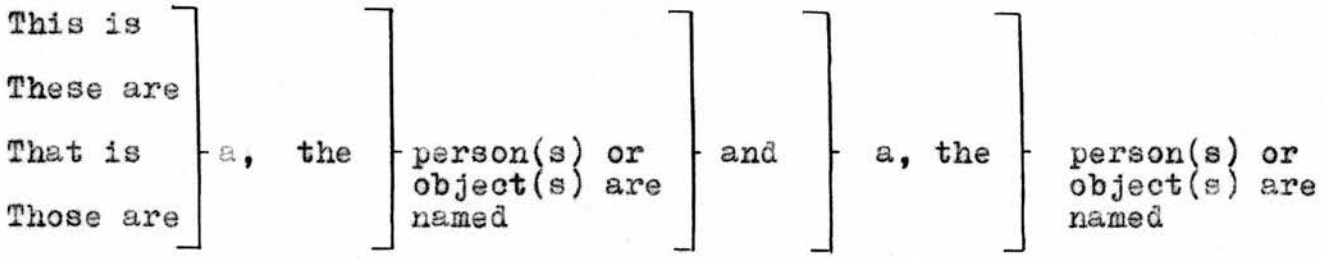
A first step in the analysis of the records of the 293 children consisted of a study of the various structural forms used by the children. Each utterance a child made aimed at communicating something about the representation he had made of his classroom. The structural forms of the utterances to handle different meanings were listed as each record was examined for the two test occasions. When all the records had been examined in this way it was possible to collate the various structural forms under six categories of utterances. These six categories were as follows:-

A. Utterances consisting only of names of persons or things.

The names were stated without any accompanying structural words. Names of things were stated in either singular or plural forms. Examples of utterances falling into this category were: names of persons; general names of persons, (e.g. boy, sister); names of articles of clothing; names of parts of the body; names of things in the classroom; names of things shown in the drawing but not part of the classroom, (e.g. trees, grass, pillar-box); and names of things not directly represented in the drawings, (e.g. letter in an envelope).

B. Utterances consisting of a pointing-naming pattern to name persons or objects.

All utterances in this category did not extend beyond the structural form:



C. Utterances consisting of an extension of the pointing-naming pattern to note significant characteristics of the physical and human situation.

The structural forms which these utterances incorporated were:

This, That He, She, It	is	a, the his, her, my	person's name (possessive form) number size colour	object(s) or person(s) are named
These, Those We, They	are	their, its		

A, The This, These That, Those My, His Her, Our Their Person's Name (Possessive form)	object(s) or person(s) are named	is, are	a, the his, her, my their, its size colour number	object(s) or person(s) are named	

These structural forms were used to describe objects or persons named by giving the names qualifications.

D. Utterances consisting of an extention of the pointing-naming pattern to locate objects and persons in space or time.

In these utterances locations were made exact by the use of such words as 'at', 'in', 'on', etc. The words 'here' and 'there' were used as well and past tense of the verb-to-be was employed. The utterances in this category incorporated the structural forms:

Here, There	is, are	object(s) or person(s) are named and given qualifications	against		
I	am, was		among		
He, She, It	is, was		at		
We, They	are, were		before		
A, The	objects(s) or person(s) are named	is, are was, were	between		object(s) or person(s) are named and given qualifications
This, That			by		
These, Those			from		
My, His, Her			in		
Our, Their			on		
Person's name			over		
(Possessive form)					

E. Utterances consisting of an extension of the pointing-naming pattern to note manipulation or control of objects and overt acts of persons

I		am	opening			
He, She			closing			
We, They		has	putting			
A, The	persons are named	have	making			
This, That		is	giving			
These, Those		are	drawing	object(s) are named and given qualifications	at	objects are named and given qualifications
Person's name			taking		in	
			getting		on	
			writing		off	
			sitting		down	
			put		up	
			made		from	
					to	

In these utterances the children named actions that were already taking place or had taken place. The direction of the action was also specified.

F. <u>Utterances consisting of an extension of the pointing-naming pattern to note movement of persons in space or time.</u>

These utterances were either preceded or followed by the word 'now'. The children named movements of persons that had taken place, were presently taking place and were to take place. The structural forms which these utterances incorporated were:

Now	I	am, was, will be				
	he, she	is, was, will be				
	we, they	are, were, will be				
	a, the	person(s) are named	is, are	walking	into	location in space is named.
	this, that		was, were	running	from	
	these, those			coming		
				going	to	

These various categories of structural forms were found to occur in the 7281 utterances in the percentage distribution indicated in Figure 11

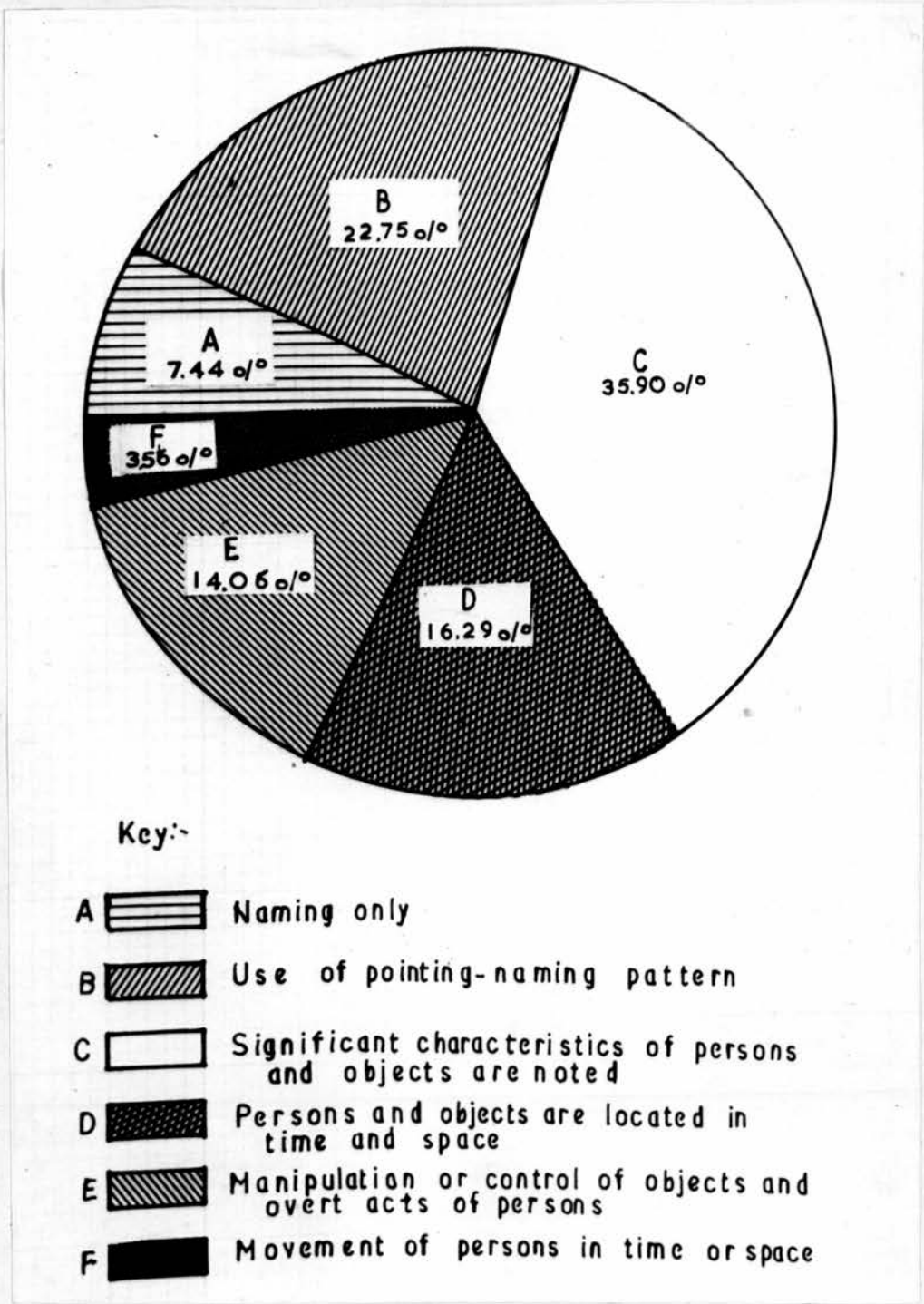


Figure 11

PERCENTAGES OF UTTERANCES ACCORDING TO VARIOUS STRUCTURAL FORMS (NUMBER OF UTTERANCES: 7281)

The highest percentage found was of those structural forms in which the pointing-naming pattern had been extended to note significant characteristics of persons and objects. The next highest percentage was that of structural forms being used to name persons and objects. The categories A - F indicated an increasing order of complexity of structural forms to handle more complex meanings. The percentages that are indicated in Figure 11 show that the children in the sample were already using many complex grammatical structures.

In order to test whether there had been any improvement in the command of sentence structure over the period of the experiment, comparisons were made of the recorded utterances of 42 E group children, 42 C I children, 42 C II children and 42 C III children. Each of these children's records were scored for the ten occasions as a preliminary stage in the comparisons.

Scoring was done according to a technique of weighting utterances suggested by Williams (1937). His technique was to assign arbitrary weights to grammatical forms of increasing complexity. Thus a simple sentence was weighted as 1 and a compound-complex sentence as 3. A number of investigations have suggested that weighting utterances would be more revealing if weighting was based on the increased complexity of structural form to handle more complex meanings. As early as 1930, Symonds and Daringer suggested that growth in language could be objectively studied by assessing the children's power to form complete, concise, balanced, consistent sentences.

In scoring the utterances in the present study, it was decided to

assign arbitrary scores to each of the six categories in the following way:

A - 1
B - 2
C - 3
D - 4
E - 5
F - 6

The records of the children in the four groups were scored using this procedure. A weighted score of each child's utterances was calculated for each test occasion. The difference between the scores was obtained by subtracting the first score from the second. The mean difference was then calculated for the group. The mean difference was then subtracted from each difference score, the values were squared and summed. The t values of these differences were then computed.

Table XIV indicates the means, the mean differences and t values of the mean differences of the weighted scores of the four groups.

TABLE XIV

MEANS, MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES OF WEIGHTED SCORES

Groups	Means		Mean Differences	t Values of Mean Differences
	Occasion I	Occasion II		
E	44.48	51.07	6.59	10.646
C I	45.07	48.07	3.00	3.947
C II	45.36	46.67	1.31	1.644
C III	44.74	46.29	1.55	2.313

N = 42 children in each group

t - ratio probability levels:
.05 = 1.99
.01 = 2.64
.001 = 3.55

The weighted mean scores of each group increased on the second occasion. The mean increases of the groups were found to be statistically significant above the .05 level of confidence with the exception of the C II children. The children from the E groups indicated the highest increase.

Comparisons of the mean increases in weighted scores were next made. The t values of the differences between increases were computed for six comparisons. These are shown in Table XV.

TABLE XV

DIFFERENCES OF MEAN INCREASES AND t VALUES OF DIFFERENCES OF GROUPS COMPARED ON WEIGHTED SCORES

Groups Compared	Difference of Mean Increases	t Values of Differences
E vs C I	3.59	3.42
E vs C II	5.28	4.89
E vs C III	5.04	[illegible].12
C I vs C II	1.69	1.50
C I vs C III	1.45	1.41
C II vs C III	.24	.22

N = 42 children in each group

t - ratio probability levels:
.05 = 1.99
.01 = 2.63

These comparisons indicated that the E group children's weighted scores had increased significantly more (above .01 level of confidence) than the other three groups. No other significant differences were found in the comparisons.

The increase in weighted scores could have come about through the E group children making a greater number of utterances on the second test occasion. In order to test to see if this was so, the mean number of utterances were computed for the four groups. Table XVI shows the mean number of utterances on each occasion and mean increases.

TABLE XVI

MEAN NUMBER OF UTTERANCES AND MEAN INCREASES IN NUMBER ON THE TWO TEST OCCASIONS

Groups	Means		Mean Increase
	Occasion I	Occasion II	
E	12.55	13.79	1.24
C I	13.00	14.02	1.02
C II	13.93	15.19	1.25
C III	13.52	14.97	1.45

All the groups increased the mean number of utterances made on the second test occasion. This seemed due primarily to practice effect. The mean increases in the number of utterances were found to be quite similar and no significant differences were found between them. The E group children thus appeared to make higher weighted scores through their use of more complex structural forms. An examination of their records added further confirmation to this finding.

The request to tell what they had put into their drawings prompted the E group children on the second test occasion to use structural forms which they had been studying during the ten meetings. Rather than just name persons or things or use the simple pointing-naming pattern, they generally began with category C, in which they not only pointed and named but also noted significant characteristics. These utterances seemed then to make possible a further extension to utterances locating objects in space or time, and to utterances noting manipulation or control of object and over acts of persons.

The C I children also frequently started by using category C. What seemed to differentiate their records from those of the E group children was that they tended less to move to more complex structural forms.

The other groups showed that they too could use any one of the categories. They commonly started with category B but failed to note that much more could have been said about the person or objects they were pointing to. They seemed less inclined than the E group children - and the C I children - to make an utterance which handled a complex meaning right from the beginning.

What the E groups and C I children had done in their reading during the ten meetings thus appeared to have considerable transfer to the new task of telling what they had put into their drawings. Examination of the printing done by the children indicated that there had been a transfer there as well.

On the first test occasion, only 97 of the 293 children attempted to print anything more than isolated letters. Of the 97 children, 69 either attempted to print their names or the names of other children in

the classroom. The remaining 28 attempted to print the names of such objects as 'desk', 'blackboard', 'door', 'window' and 'picture'. Most of these attempts were unsuccessful. The children either failed to complete the word or requested assistance. Of the children who were successful, their printing represented a copying of words printed on the blackboard or from name cards pinned to the object.

The small number of attempts seemed primarily due to the novelty of being asked to print something by themselves. In all the classrooms, printing was only attempted in the daily programme after detailed instruction on what was to be printed and how it was to be done. On the second occasion, the children seemed to have lost much of their reluctance. A total of 203 children printed their names and 184 children also printed something about their drawings.

Seventy-two children out of a combined total of 94 E group and C I children printed more than their names on the second test occasion. The two groups made an approximately equal number of attempts. There were 95 attempts made by the E group children and 88 by the C I children. Table XVII shows the words and sentences which the two groups attempted to print.

TABLE XVII

WORDS AND SENTENCES PRINTED BY E GROUP AND C I CHILDREN

Words and Sentences Printed	Number of Children making Attempts: E groups	C I children
arm	1	1
hair	1	3
hand	2	0
head x	7	4
nose	0	1
blackboard x	1	1
desk	2	0
door x	3	7
pencil x	0	1
seat x	8	10
window x	1	2
This is x name of boy or girl x	12	13
This is a door	8	14
This is a room	22	10
This is a seat	16	19
These are seats	9	2
This is the teacher	2	0
Total Number of Attempts	95	88

x Words on which an error was made.

This table indicates that the children made more attempts at printing sentences than single words. A further division of the number of children making these attempts is given in Table XVIII

TABLE XVIII

NUMBER OF E GROUP AND C I CHILDREN WHO ATTEMPTED TO PRINT WORDS AND SENTENCES.

	E group children	C I children
Attempting to print only sentences	19	16
Attempting to print only words	8	7
Attempting to print both words and sentences	11	11
Total number of children making attempts	38	34

Both the E group and C I children contributed approximately equivalent proportions to the total number of attempts. Both groups used structural forms which they had worked with during the ten meetings in order to make up sentences to print about their drawings. Most avoided any attempts to print something unfamiliar. One of the children who attempted to print 'This is a teacher' spelled the final word as 'techer'. Also the two attempts to spell 'blackboard' resulted in

one child spelling the word as 'backboard' and the other requesting assistance. The word 'pencil' was spelled 'pincil'. The most common errors occurred through omission of one of the double vowels in the words 'room' and 'door', and omission of the 'a' in 'head' and 'seat'.

Twenty-five names of other children were printed as part of the total number of attempts to print sentences. Only four of these names were mispelled and there were three requests for assistance. The names misspelled were Angus (Agus), Peter (Piter), Ian (En) and Margaret (Marot). In most of the classrooms in which the children printed other children's names there were efforts made to find out how to spell the name by asking to see the copy book of the child whose name was to be printed. With only two exceptions the E group children included names of children who had been members of their group during the experiment.

The total number of spelling errors made by the E group children was 12 while for the C I children 17 spelling errors were made. There were no instances of reversals in the printing done by both groups.

During the first test occasion only three E groups and C I Children had attempted to print any more than their own names. These attempts - two with the word door (E group) and one with 'desk' (C I) had been successful and these successes reappeared on the second drawing as well.

The marked increase in the number of attempts by the two groups accounted for a considerable proportion of the over-all increase of 156 children who were making attempts in the second occasion of drawing. Of this number, 69 children, or 44.23% of the total, were E group and C I children.

There were 112 children as well as the two groups mentioned already who printed at least one word in addition to their names on the second test occasion. Of this number 25 children had made attempts as well on the first occasion. None of the 112 children made any attempts to print sentences. Table XIX indicates the words printed and the number of children attempting each word.

TABLE XIX

WORDS PRINTED BY CHILDREN OTHER THAN E GROUP AND C I CHILDREN

Words Printed		Number of children attempting the word	Words Printed		Number of children attempting the word
Names of other children (16) 4	x	27	Janet	x	2
ball	x	3	John	x	2
blackboard	x	9	lights	x	6
b ook	x	12	man		1
boys	x	10	numbers	x	4
classroom	x	27	pencil	x	7
desk	x	15	picture	x	3
dog	x	2	school	x	40
door	x	14	teacher	x	8
flowers	x	3	window	x	9
girls	x	12			
grass	x	2			
Total number of attempts					218

x words on which an error was made

_ letters reversed or lateralized.

Of the 112 children attempting to print these words, 68 printed only one word, 34 printed two words and 10 printed more than two words. Thirteen C II children and 9 C III children were included in the total of 112. Of these latter two groups, 7 of the C II children and 4 of the C III printed more than two words and 1 (C III) printed more than two words.

With the exception of 12 names of children only one word (man) was free of error. On the 218 attempts there were 113 errors. The sorts of errors made and the number of children making errors is indicated in Table XX.

TABLE XX

ERRORS MADE IN PRINTING BY CHILDREN OTHER THAN E GROUPS AND C I CHILDREN

Errors	Examples of errors	Number of children making the error
(1) Unable to complete word Children request assistance	blackboard teacher	13
(2) Reversals of letters and lateralizing of letters	ɥ for h d for p	41
(3) Omission and addition of letters	litis (lights) flloors (flowers)	19
(4) Printing word according to its phonemic character	pinsul (pencil) Mawra (Moira)	16
(5) Omission of letters	schol, bal, dor	9
(6) Incorrect order of letters	grils (girls) Petre (Peter)	8 7
(7) Addition of letters	grasse	7
Total number of errors		113

The errors made by these children differed from those of the E group and C I children both in the sort of error made and in the total number of errors.

The E groups and C I children made no errors by omission and addition of letters, by addition of letters, by incorrect order of letters or by reversals and lateralizing of letters. This latter sort of error accounted for 36.28% of the total number of errors made by children who were not E group or C I children. Examination of Table XIX indicates the number of different letters that were confused. The E group and C I printed the letters: b, d, g, h, k, n, p and s successfully. The increased attention to these letters in the ten meetings seemed to account for their greater proficiency in printing these letters correctly.

There were 12 names of other children printed correctly by children other than the E group and C I children. In the latter two groups, 18 names were printed successfully. Only 3 C II children attempted to print the names of children they had worked with during the experiment. The names selected for printing seemed to correspond with seating partners or fellow-members of a daily reading group. The names 'Janet' and 'John' were printed by 4 C II children who had been comparatively successful during the ten meetings.

In all the printing done on the second occasion, the children appeared to select for printing something that was in some measure under control. The kind of task the children were asked to do, gave the E group and C I children the opportunity to apply something they had apparently mastered. They had not been given any practice in printing the sentences which they had read during the ten meetings but the sort of

study they had to do made a difference in what they selected to print, and on their perceptual and motor skills in doing that printing.

Examination of the content of the E group and C I children's drawings suggested that the sort of reading done during the ten meetings could also influence what was put into the drawings. Thus reading about seats, windows, doors, trees and roots prompted 22 of the E group and C I children who had not included these things in their first drawing to put them into the second.

These changes in the drawings did not appear to be confined only to the number of things included. The E group and C I children also seemed to include more relevant detail in their drawings. This seemed most noticeable in their drawings of persons. They had been concerned during the ten meetings with reading material that frequently pointed and named parts of the body. The drawings at the side of the sentences read were most frequently representations of persons, parts of the body and articles of clothing. This seemed to influence their drawings of persons.

It was possible to objectively test the extent of this influence by scoring the children's drawings of persons. The majority of children who made representations of their classroom included drawings of persons. There were only six children in the sample who did not attempt to make at least one drawing of a person. There were 42 children in each of the E, C I, C II and C III groups who made drawings of persons.

The drawings were scored according to the point system developed by Goodenough in her Draw-A-Man test. Considerable flexibility was allowed in the scoring of the four groups' drawings. Most children had

more than one person included in their drawing. Points were credited when an attribute was shown on any one of the representations. Two scores were obtained for each child; one for the first test occasion, the second for the drawings at the end of the ten week experiment.

The mean differences were computed for the two test occasions and t values of these differences were computed. Table XXI indicates the means for the two occasions, the mean differences and t values of these differences

TABLE XXI

MEAN SCORES, MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES ON TWO TEST OCCASIONS OF DRAWINGS OF PERSONS MADE BY E, C I, C II AND C III CHILDREN

Groups	Mean Scores Occasion I	Occasion II	Mean Differences	t values of Mean Differences
E	18.90	20.09	1.19	2.44
C I	18.36	19.03	.67	1.71
C II	17.81	18.38	.57	1.59
C III	18.48	19.00	.52	1.24

N = 42 children in each group

t - ratio probability levels:
.05 = 1.99
.01 = 2.64
.02 = 2.42

The mean scores of all the groups showed an increase on the second test occasion. The only mean difference that was found to be statistically significant, however, was that of the E group children. The difference between their mean scores was found to be significant at the

.02 level of confidence. Although there was an increase in the mean scores of the C I children, the difference was not statistically significant.

Just reading sentences that named parts of the body and seeing stick-figure representations of persons over a ten-week period did not appear to make any significant changes in drawings. But when such study took place in a group, significant changes were brought about. The E group children made higher mean scores not only because they included parts of the body that they had not included before but also because they seemed to be more concerned with significant characteristics that should be put in the drawings. Thus, the E group children tended to put hair on the heads of figures they drew more frequently than the other children. They were also more inclined to put the correct number of fingers on hands to include pupils as parts of the eye, to show a chin, lips and teeth and to put in details of clothing. There were also more E group children who drew figures in profile.

This increased attention to significant details seemed to be the result of transfer from what the children had been doing in their weekly meetings. After the third meeting, the group continually forced and directed the reader to study what he was doing. The reader used the non-verbal abstractions of stick figures as clues for the meaning of what was to be read, but they had also to give particular attention to variations that occurred in the drawings. When they did not look carefully enough and read incorrectly, suggestions from the group directed them to have not only another look but a different look. Parts of the drawing and variations in a number of the drawings were pointed out for the reader's attention.

The procedure of taking turns also gave the children time in which

they could more freely examine what was on the presentation sheet. Their search for cues that could be used to verify what they had read, to revise what was not read correctly and to provide suggestions, seemed also to increase their awareness of what should be included in a drawing a person.

Although stick-figures had been used extensively in the Richards-Gibson material, none of the E group and C I children attempted to use this technique in making their own drawings. The representations which they made of persons were similar in form to those made by the rest of the children. As pointed out above, the drawings made by E group children differed from the rest in the extent of significant characteristics that were included.

The technique of asking the children to make a drawing of their classroom and of having them tell what they had put in their drawings proved to be a most productive instrument for exploration. The test was easy to administer and was something the children delighted in doing. The procedures of analysis were rather laborious however but could yield data that could be objectively treated. In the present study only a limited number of possibilities of analysis were attempted.

What analyses were made confirmed the hypothesis that the sort of reading done by the E group and C I children had ~~made an effect~~ affected on the ways they selected, and ordered their speech and writing. What the analyses also showed was that the situation in which such reading took place could have effects on what, and how, the children spoke, printed and drew.

* * * * * * * * * * *

All the outcomes of Investigation One that have been reported could have been influenced by two major factors. In all the classrooms, from which the children taking part in the experiment were selected, the teachers were attempting to bring learning to read about by various methods. A multitude of influences from the daily programme impinged on the weekly meetings. In addition, the kind of direction given to the children by the experimenter during each meeting could have biased the outcomes.

At the end of Investigation One, it seemed advisable to carry out a further small-scale experiment. The children in this second study were <u>not</u> to have started formal reading instruction. The second condition for the experiment was that persons other than the experimenter should direct the children and should meet them in daily meetings rather than once a week. How the small-scale experiment was conducted and its outcomes are described in the next section.

SECTION VI

INVESTIGATION TWO

(a) Introduction

In the investigation reported in Section IV and V special attention was given to the sort of language - the letters, the words, the sentences and the sequences - through which learning to read may be brought about. Those children who worked with the Richards-Gibson material were found to have more awareness of an essential core of letters, vocabulary and framework of English than those who had worked with a more miscellaneous, unordered task.

The ten-week experiment demonstrated, as well, that a course of reading, which invited children, in small groups, to study how language is used, could develop their language power and increase their social growth. Those children who worked together with the Richards-Gibson material were found to have a more secure command of letters, vocabulary and structure than those who had worked with the same material without the company of other learners. This increased mastery by the children in the groups appeared to come about through the children learning from one another and aiding each other in their learning.

The children in the first investigation, however, had been at school over five months at the time the study began. Each teacher in the eight classrooms was following an instructional programme by which she sought to bring learning to read about. The ten meetings were thus primarily supplements, of a special sort, to a regular programme: Further, the weekly meetings were organized and directed by only one

person. The kind of attention given to the children by this person could have biased the outcomes.

Investigation Two was designed as a small-scale experiment to test the outcomes of Investigation One when:

(1) the range of classroom influences was limited,

and (2) the children were directed either individually or as members of a group by persons other than the investigator.

The subjects who took part in the experimental meetings of Investigation Two were children who were just starting their first year at school and who were not yet being taught to learn to read by any formal programme of instruction.

The children were selected from three classrooms in three different schools. Three boys and three girls from each classroom worked together taking turns at reading the Richards-Gibson material aloud. These children were referred to as the experimental group. The "control children" were composed of three boys and three girls from each classroom who worked at reading the Richards-Gibson material aloud when no other children were present. The experimental groups and control children were presented with the Richards-Gibson reading material daily rather than once a week as in Investigation One. Further, they were directed by persons who had spent many years working with infant classes but who were not directly concerned with the over-all design of the investigations.

(b) Plan of the Investigation.

(i) Selection of persons to direct the experimental group and control children.

At the end of Investigation One most of the teachers from whose

classes the E groups and C I children had been selected, were most enthusiastic with the changes they had noticed in the two groups during the ten weeks. Many were anxious to learn more of how the changes had been brought about. It was, however, impossible for these teachers to take part in the second investigation because they had to continue with their particular class for another two years. What was required in Investigation Two was to have persons who would direct the children from the initial stages of the first school year. In order to find persons who could - and would - do this, the Infant Mistresses in nine Edinburgh Corporation Schools[1] were contacted. Each was given an opportunity to examine the presentation sheets and to make written comments about whether or not they considered the material as suitable for beginning readers. During each discussion the Infant Mistresses was asked to give careful attention to the design of the material. A period of at least two days was allowed for the Infant Mistresses to examine the material and then the written comments were collected.

The comments made by the Infant Mistresses were generally quite extensive and detailed. There were only three Infant Mistresses, however, who felt that they would like to see what children could do with the material. The comments of six Infant Mistresses were devoted primarily to indicating why they thought such material was not suitable for beginning readers.

The most frequent comments were centred on what was termed the "failure of the reading material to conform to childhood interests". There were comments which stated that the content was "too stodgy"

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1. These schools were not part of the sample in the first investigation.

"too adult", "unlike children's speech" "uninteresting" and that it "had no reference to children's activities or things children liked to do". Comments were also made that most of the pictures would be "uninteresting" for children and that they lacked "any form or animation". The six Infant Mistresses felt that, as one wrote, "there would be no encouragement for the child to want to read".

Two Infant Mistresses felt, however, that the material might have a place in a programme for children who were "slow" or "retarded". These comments came from Infant Mistresses of departments where the children were from good homes and were considered to be above average in learning capacities. Two other Infant Mistresses, many of whose children came from impoverished homes, made opposite comments. They considered that the reading material was most suitable for "brighter" children and that it was much too difficult for "slow" children.

The detailed comments frequently pointed out places in the material where there were, according to one Infant Mistress, "too many words of the same perceptual configuration". All considered as well that whole sentences should not be introduced at once; that they "should be built up gradually" from single words. There was also much concern that there was "little attention paid to phonic words". The Infant Mistresses felt that the children would not know how to "attack the words". They also commented that the structure words such as 'This', 'It', 'his', etc., were unnecessary at the beginning stages. They suggested that the words used should have a "definite meaning" and other words should be presented only "when they were needed".

Three of the six Infant Mistresses recognized that there was a small number of letters used to make up the words and a small number of words in all the sentences. They commented that this did not provide for "an increased vocabulary" nor opportunities "for learning the letters of the alphabet". They also considered that such a reduction resulted in the sentences being "isolated from one another". Sentences for beginning readers, they commented, should be all linked together to "tell a story". The Infant Mistresses considered that the reading material would not prepare the children for other tasks in reading, nor would it encourage them to want to read "stories".

All the six Infant Mistresses commented that there should be greater attention to letters and words so that, as one Infant Mistress wrote, "by analysis of parts, wholes could be recognized." All considered that there was an overly rapid advance in the sentences and that time should be given for examination of each individual word and letter. The general tenor of the comments of these six Infant Mistresses was that the reading material represented a step backwards rather than forwards in the design of material for beginning readers.

The three Infant Mistresses who requested that they would like to see what children would do with such material indicated in their comments something of why they made the request. All recognized that a control was made of the intake of letters and there was a further recognition that as one wrote: "difficult letters were introduced gradually". The three Infant Mistresses also recognized that the sentences

had a "clear meaning", that was illustrated with a simple picture. They also commented on the small number of items that had to be discriminated at any one time and the control of sequences when discriminations were invited. Two pointed out, as well, that the sentences seemed to develop in an "orderly" way so that "success might be experienced". All the three Infant Mistresses felt that a programme for beginning readers that "centred around" this material might encourage habits that would help the children in all later work.

These three Infant Mistresses were visited and during a discussion of their comments all stated their willingness to direct the experimental and control groups for a seven week period. By that time they felt the regular programmes would be started in the children's classrooms and they felt they should not interfere with the classroom teachers' plans for reading instruction beyond that time.

(ii) Selection of the experimental groups and control children.

The number of children in the classrooms from which the children were selected was approximately the same (average number of 31) and there were approximately equal proportions of boys and girls. The children had all recently started their first year at school. When the investigation began, they were in their third school week and were engaged in a number of Infant School activities. Certain of these activities were designed to prepare the children for reading instruction. The children were told stories, were shown pictures, were encouraged to talk and to trace drawings above printed symbols. Two classrooms were also using workbooks designed to prepare children for certain programmes

of reading instruction.

The children for the experimental groups were selected at random from the alphabetical class lists. Three boys and three girls were selected in each of the three classrooms. In order to select the control children, all the children in the classrooms were first tested with the Goodenough Draw-A-Man Test. Two administrations of this test were made with a week separating the two test occasions. The scoring of the drawings and computation of Goodenough I.Q. scores were similar to procedures used in Investigation One. All the children were also tested on subtests two, three and five of the Gates Reading Readniess test and tests R 6 and R 7 of Schonell's Diagnostic Tests in Reading. Administration of these tests and scoring were again similar to procedures in the first investigation.

The control children were matched with the children in the experimental groups on three criteria:

(a) chronological age to nearest month;

(b) Goodenough I.Q. score;

(c) composite score on the Gates and Schonell tests.

When there were more than three boys and three girls in each classroom who might be chosen, a selection of the children was made by drawing at random from the possible choices.

Table XXII indicates the means and standard deviations on the three criteria used to match the experimental and control groups.

TABLE XXII

MEANS AND STANDARD DEVIATIONS ON THE THREE CRITERIA USED TO MATCH CHILDREN IN THE SECOND INVESTIGATION

Criteria	Experimental Groups		Control Children	
	Means	S.D.	Means	S.D.
Chronological age to nearest month	60.83	± 1.86	60.94	± 1.98
Goodenough I.Q. scores	111.79	± 12.64	110.61	± 12.89
Composite score on Gates and Schonell tests	38.94	± 11.07	39.50	± 12.16

No significant differences were found between the means on the three criteria of matching. The mean composite scores made by the children on the Gates and Schonell subtests were over 15 points lower than the mean scores made by the children selected for the first investigation. These differences seemed to be primarily due to the limited amount of classroom instruction that had been given to the children in the second investigation.

The occupations of the parents of the children selected accorded with the 1951 Census five-fold social classification as indicated in Table XXIII.

TABLE XXIII

SOCIAL CLASSES ACCORDING TO OCCUPATIONS OF PARENTS OF CHILDREN SELECTED FOR EXPERIMENTAL GROUPS AND CONTROL CHILDREN

1951 Census Five-Fold Social Classification	Experimental Groups		Control Children		Totals	
	Boys	Girls	Boys	Girls	Boys	Girls
I Higher Professional etc.	-	-	2	-	2	-
II Professional and intermediate	2	2	1	3	3	5
III Skilled, supervisory	4	5	3	4	7	9
IV Semi-skilled, assistant	3	2	2	2	5	4
V Unskilled, casual	-	-	1	-	1	0
Totals	9	9	9	9	18	18

With the exception of Social Class V the types of occupations of the children's parents were present in much the same proportion as each occurs in the community at large, (Great Britain, 1952, 1% Sample).

(iii) Experimental Procedures.

Before the experimental meetings began all the children in the classroom were set the task of making a drawing of their classroom and of telling what they had put into their drawings. The procedures for asking the children to make the drawing and of recording what they said about their drawings were similar to those used in Investigation One. The children in all the classrooms had been making many drawings during

the first three weeks of school and seemed delighted to make another. They were also asked to print something on their drawings if they were able to do. The experimental groups and control children were taken first to hear what they had put into their drawings. This allowed for an earlier beginning of the meetings.

A discussion took place with the three Infant Mistresses about procedures that could be used during the meetings. Arrangements were made for a special study room with appropriate furniture and lighting. The placements of the presentation box was demonstrated and the technique of presenting the sheets. The Infant Mistresses were also told how the children were arranged in seats and how positions were changed at each meeting. The Infant Mistresses wished to know how the children in the first investigation had been started and how each new meeting was begun. An outline of the procedures was given as well as a description of how the children were directed to take turns and how they were allowed to make suggestions. The Infant Mistresses stated that they could give approximately twenty minutes time to the group and an equal time to each of the children in the control group. It was suggested that an equal number of turns should be given to each child in the group.

The children in the experimental groups met daily with the Infant Mistresses for four days of the week. The meetings took place over a seven week period and were so arranged that fourteen meetings took place in the morning and fourteen meetings took place in the afternoon. The Infant Mistresses met each of the control children a comparable number of times. At the end of each meeting, the Infant Mistresses made notes about what they had observed during the twenty

minutes and the extent of reading done during that time. The Infant Mistresses all wanted to retain these notations but permitted copies to be made of the records.

During the seven weeks, the investigator spent some time each day in the classrooms helping the teacher with her regular programme. At no time was there any intervention in how the Infant Mistress was directing the children during the meetings and no visits were made to the study room. There was also no discussion after a study group meeting. Such discussion was reserved until the end of the twenty-eight meetings.

At the conclusion of the experimental period, the children who met with the Infant Mistresses were tested individually on two tests. The word-recognition test used in Investigation One was administered first. Since the children in the second investigation had worked on more presentation sheets than the children in Investigation One, a supplement of 14 additional words was made to the test. The extra words included those studied by all the children in the second investigation to the end of the fifty-first presentation sheet. The test given in Appendix II was also administered to the two groups.

All the children in the three classrooms were tested individually for the second time, on the items of the Gates and Schonell subtests. All the children were also requested to make a second drawing of their classroom, to tell what they had put into their drawings and, when possible, to print something on their drawings. Throughout the administration of all of the tests the procedures used were similar to those employed in the first investigation.

(c) Results.

(i) Infant Mistresses' Records.

During the twenty-eight meetings of the experimental groups and control children, there were 8 children who missed some of the meetings. Four of the children in the experimental group missed one meeting and 1 child missed two meetings. Of the control children, 1 child missed one meeting, 1 child missed two meetings and 1 child missed four meetings.

Each Infant Mistress attempted to give each child in the experimental groups an even number of turns. They also attempted to keep the duration of a meeting to a time limit of twenty minutes for both experimental groups and control children. The records kept by the Infant Mistresses indicated that they had been most conscientious in doing this. Their records indicated, however, certain variations in the total number of presentation sheets that were attempted during the twenty-eight meetings. Table XXIV indicates the highest number of presentation sheets attempted by the experimental groups from the three classrooms and the lowest number and highest number of presentation sheets attempted by the control children.

TABLE XXIV

HIGHEST NUMBER OF PRESENTATION SHEETS ATTEMPTED BY EXPERIMENTAL GROUPS AND CONTROL CHILDREN IN THE TWENTY-EIGHT MEETINGS

Classroom	Experimental Groups		Control Children
	Highest No. of presentation sheets attempted	Lowest No. of presentation sheets attempted	Highest No. of presentation sheets attempted
X	67	51	63
Y	72	63	71
Z	65	56	60

When one of the control children was absent during the day of a meeting, the Infant Mistresses started the child at the next meeting at the point where he had stopped before. Most of the lowest number of presentation sheets attempted were due to absences. When a child was absent during a meeting of the experimental groups, no special attention was given to that child on his return. All the Infant Mistresses reported that they watched these children in order to give them assistance, but they "did not often need help" and they were "assisted by other children".

Table XXIV indicates that the experimental groups attempted slightly more presentation sheets than the control children. The records kept by the Infant Mistresses gave certain indications of why this was so. The records also pointed out certain similarities in the steps taken by the experimental groups and control children in

becoming aware of the meanings of the printed symbols. These steps reported by the Infant Mistresses were also in many ways comparable to those observed in the first investigation.

All the Infant Mistresses reported that in the early meetings the children made "many mistakes". They reported how the children frequently made guesses at what was written. The children were "often confused" by taking the beginnings and endings of similar words as their "only means of attack". There were reports that the children also tended to rely on what was spoken immediately before as the only clue for what they were to read next. They were reported to substitute, to omit and to add words about "words that they had recognized before" in order "to read something about the picture". The Infant Mistresses' reports also indicated that these ways of dealing with a difficulty continued to recur even though there were attempts "to prompt" the reader to do otherwise.

There were reports that in the early stages the children's attention "seemed to be limited"to"only one task at a time". When too many "difficult" words had to be read, this could cause "numerous mistakes", even on words read correctly before.

The three Infant Mistresses reported that during the first five meetings the children in the experimental groups seemed to make little, if any, "progress". Two of the Infant Mistresses wrote that at these meetings they felt nothing was being gained by having the children in a group and that it might even be an obstacle to learning. The children in the group only "seemed interested as to when their turn was to come" and paid little attention to what they or the other children

were reading. The Infant Mistresses reported difficulty in having the children recognize "where a turn was to begin" and "to pay attention to the spot where reading was taking place". They reported that what help was offered during the early stages was limited both in quantity and helpfulness. One Infant Mistress wrote at the end of the fifth meeting that: "children this age are not able to work as a group" and she was doubtful if the experiment should be continued.

The doubts of the Infant Mistresses as to the efficacy of group procedure were accentuated by the contrast of the "progress" which the control children seemed to be making from the third meeting onwards. There were reports at the third meeting that the children working without the company of other children were "increasingly recognizing their mistakes". This stage was apparently not reached by the children in the experimental groups until the sixth meeting.

When the stage was reached, it was noted in the reports by the greater number of requests for assistance and a tendency for the children in the group "to pay attention to what the reader was doing and to help by saying the correct word". There were reports that the children also tended to point to what they were reading and that they also frequently re-read the sentence. The Infant Mistresses noted that coinciding with a recognition that errors were being made, the children also "experienced success". They reported that the children seemed to be excited "when a difficulty was tackled successfully", that they read parts of the sentences orally before reading the whole and that they pointed to the pictures and to previous sentences in order "to guarantee that they were correct".

From the sixth meeting, the three Infant Mistresses frequently noted that the group seemed to force the reader to attend to what he was doing or as one Infant Mistress wrote: "to keep them on their toes". The records indicated that certain children in the group used words which they had "mastered" to help the children who were having difficulty with those particular words. The Infant Mistresses also noted that children in the group could help each other "to recall words they had forgotten momentarily" and, by pointing to certain words, sentences or parts of the drawings, help the reader "to find out how to solve his problem". The Infant Mistresses also noted that the group seemed "to help and to encourage" the reader to attempt more than one problem and gave emphasis to new successes and to words requiring careful attention.

By the twelth meeting, the Infant Mistresses reported that all the children seemed " to be making much the same progress". There were numerous instances reported of children repeating parts of the sentences, re-reading the whole sentence to "test what was read" and pointing to specific areas of the words, the sentences and the drawings. What was read before seemed to be used now "to advance to new reading". During this period the Infant Mistresses reported that the children also seemed more able "to discover new vocabulary for themselves" and that they made fewer requests for assistance.

The Infant Mistresses pointed out, however, that more requests for assistance came from control children and that these children more frequently allowed "old mistakes to occur again". Certain areas in the reading seemed to cause more difficulty for those children than for the children in the experimental groups.

One of these areas (R 37 to R 39) had caused much trouble for the C I children in the first investigation and in the reports of the Infant Mistresses, this area was also "a trouble spot" for the control children.

They reported that the children in the group now made "more helpful suggestions" and that this greatly aided the reader. There were also reports that the form of the suggestions had changed. Rather than give an immediate suggestion, the children waited until the reader "had tried out some of the words". Suggestions only came when "mistakes were made in reading the whole sentence". Frequently, direct prompting was avoided and was replaced by an exclamation of "No!" and "a pointing to the mistake" and often to the place where the reader could look to correct the mistake. One Infant Mistress reported that the children in her group refused to take a turn until errors made in the preceding sentence were corrected.

The Infant Mistresses noted in their records that the children seemed to be as one Infant Mistress wrote; "cooperating together in all that they did". All reported that from the twelfth meeting onwards the children in the group tended to rely on themselves and their partners for solving their difficulties. They noted that the children seemed to "watch out" for places where difficulty might occur in their own reading and in others' reading, and "were continually comparing their work". There were no reports of problems in directing the children to take turns or to take up their new seating arrangements at each meeting. The reports noted that many of the children in the

group tried to help the "slower children" and those who had missed a meeting. As the number of meetings completed increased there were reports of children decreasing their errors, and as one Infant Mistress noted at the end of the fourteenth meeting: "Sandy - a very slow child - even offered help to a better reader to-day!".

By the time that both the experimental groups and the control children had completed twenty-eight meetings, the Infant Mistresses had all noted the children's awareness of the organic sequences of the sentences. One Infant Mistress wrote that the children now recognized "how the sentences were linked together not only on one sheet but from one sheet to the next". This latter phase of the meetings was also marked by the children's eagerness to go on reading. All the reports indicated a marked reduction in the number of mistakes that were made - particularly by the children in the experimental groups. Requests for assistance were also limited in number and had almost completely disappeared in the experimental groups. The most common sources for requests for assistance came with words for names of persons and names of general things. Even for these words, one Infant Mistress reported that the children in the group seemed "to pool their thoughts from many different places about what the word might be and were remarkably successful in these efforts."

(ii) Comparisons of Experimental Groups and Control Children.

At the completion of twenty-eight meetings, the children were tested on how well they could respond to the words studied when these words were shown to them on flash-cards. This word-recognition test was divided into two parts. Fourteen words were presented which the children had studied beyond those studied by the children in the first investigation. Only those words up to R 51 were presented in order

to make allowances for those control children who had missed some meetings. The number of children who made incorrect responses to the fourteen words is indicated in Table XXV.

TABLE XXV

NUMBER OF CHILDREN MAKING INCORRECT RESPONSES TO PRESENTATION OF 14 ADDITIONAL WORDS ON WORD-RECOGNITION TESTS.

Words		Number of children making incorrect responses		Total No. of incorrect responses
		Experimental Group	Control Children	
Picturable Things	dog	-	-	-
	dogs	-	-	-
	garden	1	1	2
	grass	-	1	1
	stores	-	-	
	town	1	2	3
General Things	word	1	2	3
	words	1	3	4
Operations	with	-	1	1
	again	1	1	2
	now	1	2	3
	Now	-	1	1
	together	-	1	1
Qualities	new	-	-	-
		6	15	21

N = 18 children in experimental group; 18 control children

On this part of the word-recognition test, the children in the experimental group made less than one-half the number of incorrect responses made by control children. The principal sources of incorrect responses were on names of general things and names of operations.

The main part of the word-recognition test was identical to that administered to the E group and C I children in the first investigation. Table XXVI indicates the mean number of correct responses made by experimental groups and control children, mean differences and t values of these mean differences.

TABLE XXVI

MEAN NUMBER OF CORRECT RESPONSES MADE BY EXPERIMENTAL GROUPS AND CONTROL CHILDREN, MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES ON THE SECOND PART OF THE WORD-RECOGNITION TEST

		Mean No. of correct responses: Experimental Groups	Mean No of corr-ect res-ponses: Control Children	Mean Diff.	t values of Mean Diff.
Names of persons and things	Singular No. of words = 36	31.56	31.33	.23	.35
	Plural No. of words = 20	17.51	17.11	.45	1.02
Operations	Non-capital forms No.of words = 29	22.50	20.	2.50	3.33
	Capital forms No.of words = 17	13.72	12.27	1.45	2.84

N = 18 children in experimental groups; 18 control children

t-ratio probability levels
.05=2.03
.01=2.73

The mean number of correct responses made by these children were found to be higher than those made by children in the first investigation for all categories but one. The C I children in Investigation One made a mean number of 14.29 correct responses on the capital forms of operations. No significant differences were found between the means of the experimental groups and control children for names of persons or things in either singular or plural forms. Significant differences were found above the .01 level of confidence on words naming operations. As in the first investigation, the experimental group scored higher through their increased mastery of words such as: 'these', 'those', 'here', 'the', 'their', 'two', 'one' and 'nine'.

The second test administered to the children was concerned with assessing their mastery of letters, words and sentences while the various parts were presented in sentences handling various meanings. The test used is shown in Appendix II. Out of a total possible score of 59, the scores of the children in the two groups ranged from 56 to 41. The mean score made by the experimental group children was 49.61 while the mean score for the control children was 47.22. The difference between these mean scores was 2.39 and was found to yield a t value of 2.49. This value indicated that the difference between the means was significant above the .05 level of confidence.

Examination of how the experimental group and control children tackled the various items on the test indicated why the experimental groups made a higher mean score. There was a close similarity found between how the E group children in the first investigation and the

experimental group in the second investigation tackled the test items. Both groups in the two investigations indicated a superiority over the other children in four principal ways. These were:

(a) An increased persistence in tackling the items and in attempting more of those items;

(b) A greater tendency to re-examine and to confirm if the item was done correctly;

(c) A greater tendency to revise work after oral reading and/or after working through other items and,

(d) An increased recognition of what was required in the task and what was needed to meet the requirements.

(iii) Comparisons of Experimental Groups, Control Children and Other Children in the Classrooms.

All the children in the three classrooms had been assessed on the five subtests of the Gates and Schonell reading tests at the end of experimental period. During the seven weeks, the children in the classrooms had been engaged in many activities by which the teachers sought to prepare the children for a reading programme. In addition, many of the children had received special attention. The experimental groups and control children had been engaged daily in oral reading under the direction of the Infant Mistresses. The investigator had also spent considerable time with other groups of children in the classroom. The scores made by the children on the Gates and Schonell tests all showed a marked gain from the first test occasion to the second. Eighteen children who had not taken part in the meetings were matched on first test scores with experimental group children.

Matching also took place on the criteria of Goodenough I.Q. scores and chronological ages, to the nearest month. The experimental group, control children and matched children were then compared on mean composite scores made on the second administration of the Gates and Schonell tests. Table XXVII indicates these mean scores of the children, mean differences and t values of these mean differences.

TABLE XXVII

MEAN COMPOSITE SCORES, MEAN DIFFERENCES AND t VALUES OF DIFFERENCES OF CHILDREN COMPARED ON THE SECOND ADMINISTRATION OF GATES AND SCHONELL COMBINED TESTS

Groups Compared	Experimental Group	Control Children	Matched Children	Mean Differences	t values of mean differences
Experimental vs. Control	68.11	58.39		9.72	2.47
Experimental vs. Matched	68.11		42.56	25.55	6.76
Control vs. Matched		58.39	42.56	15.83	4.77

N = 18 experimental group children;
18 control children;
18 matched children;

t - ratio probability levels:
.05 = 2.03
.01 = 2.73

On these tests, the experimental groups and control children in the second investigation had mean scores almost equal to those of the E group and C I children of Investigation One (E: 69.02; C I: 62.71). The mean scores of the matched children, however, differed markedly from children's mean scores in the first investigation (e.g. C II: 56.75; C III: 53.43). Learning to read had thus made a substantial

difference on how well the children did the various test items. Further the sort of reading done by the experimental groups and control children had been sufficient during 28 meetings to bring their mean scores almost up to the level of children who had been at school over six months.

Significant differences above the .05 level of confidence were found for all comparisons made. An examination of the test records indicated that the experimental groups and control children not only attempted more of the test items than the matched children but also got more of those items correct.

The experimental groups were differentiated first by their increased persistence in attempting more of the test items. They also indicated a greater mastery of the 13 letters of the alphabet which they had studied in the words making up the sentences of the Richards-Gibson material. The letters: a, d, e, g, h, i, m, n, o, r, s, t and w were all named correctly by the experimental groups on sub-test five of the Gates test and were used by the children as focal points in making their discriminations. The experimental groups indicated an increased awareness as well of the order of familiar letters in a word. Finally they made higher mean scores through their tendency to compare before marking a final decision about a test item. This comparing was used to revise decisions, when necessary, and also to confirm what they had done.

The records of the matched children were characterised by numerous refusals. These children also showed a marked tendency to

use modes of guessing at the words only by their beginnings and endings. They tended to rely on patterns which they had found to work on earlier test items. There were numerous instances of reversals in their discriminations in contrast to no reversals made by the experimental and control groups.

Learning to read during the twenty-eight meetings thus appeared to have made a difference in how the experimental groups and control children kept other perceptual tasks in order. The final tests were concerned with how the children now ordered their speech, writing and drawings. In making an analysis of the data gained from the children's drawings of their classroom and their speech, procedures similar to those of Investigation One were employed.

The first analysis was concerned with structural form used by the children in telling what they put into their drawings. The criterion used to classify a unit of speech as an utterance in the first investigation was employed again. Each record was first examined according to the number of utterances made. After all the records had been examined in this way a group of children were selected, composed of those whose number of utterances could be matched with the number made by the experimental group children. Table XXVIII indicates the mean number of utterances made by the experimental, control and matched children on the two test occasions. The table also indicates the mean differences in the utterances between the two occasions.

TABLE XXVIII

MEAN NUMBER OF UTTERANCES AND MEAN DIFFERENCES ON TWO TEST OCCASIONS MADE BY EXPERIMENTAL, CONTROL AND MATCHED CHILDREN IN THE SECOND INVESTIGATION

Children	Mean No. of utterances		Mean Differences
	Occasion I	Occasion II	
Experimental	9.72	13.22	3.50
Control	10.44	12.39	1.95
Matched	9.72	11.89	2.17

N = 18 experimental group children;
18 control children;
18 matched children.

All the children made a smaller mean number of utterances on the two test occasions, than any of the groups in the first investigation. This would seem to be partly accounted for by the reluctance to talk which young children often evince when starting school. The children in the second investigation had also fewer opportunities than the other children to be encouraged to talk, not only about other pictures but also about what they drew themselves. All the children increased their mean number of utterances on the second test occasion. Comparisons of mean gains indicated no significant differences however.

The structural forms used by the children in their utterances were found to correspond closely with the six categories of utterances found in Investigation One. The utterances of children in the second investigation were accordingly scored by the weighting system adopted in the first investigation. In summary, that technique of scoring was as follows:

	Category	Weighted Score
A.	Naming only:	1
B.	Pointing-naming pattern:	2
C.	Pointing-naming pattern extended to note significant characteristics of physical and human situation:	3
D.	Pointing-naming pattern extended to locate objects and persons in space or time:	4
E.	Pointing-naming pattern extended to note manipulation or control of objects and overt acts of persons:	5
F.	Pointing-naming pattern extended to note movements of persons in space and/or time:	6

The utterances of the children were scored according to this technique for the two test occasions. Those children whose number of utterances had been matched with the experimental group were also matched on weighted scores for the first test occasion.

Table XXIX indicates the mean weighted scores on the two test occasions, mean differences between occasions and t values of these mean differences.

TABLE XXIX

MEAN WEIGHTED SCORES ON TWO TEST OCCASIONS, MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES OF CHILDREN COMPARED IN INVESTIGATION TWO

Children	Mean Weighted Scores		Mean Differences	t Values of Mean Diff.
	Occasion I	Occasion II		
Experimental	32.39	39.56	7.17	7.39
Control	34.50	37.83	3.33	3.58
Matched	32.72	32.94	.22	.286

N = 18 experimental group children;
18 control children;
18 matched children

t - ratio probability levels:
.05 = 2.11
.01 = 2.90
.001 = 3.97

The differences between mean weighted scores made by the experimental groups and control children on the two test occasions were found to be statistically significant at above the .01 level of confidence. The mean difference in weighted scores of the matched children was, however, not found to be statistically significant. The sort of reading done by the experimental groups and control children thus seemed to have transferred to how they ordered their speech.

When the mean gains of those children were compared, a mean gain difference of 3.74 was found. This difference yielded a t value of 2.71 which indicated a significant difference above the .05 level of confidence. The children working together during the 28 meetings had

apparently succeeded in mastering more complex structures than the control children, to a point where they used these structures to tell what they put into their drawings. Examination of their records showed that, similar to the E groups of the first investigation, the experimental group children indicated an increased tendency to begin their utterances with Category C and then to extend other utterances to more complex structural forms.

The second analysis was concerned with the children's attempts to print something on their drawings. On the first test occasion, none of the children were able to print anything. Some attempted to print their names, but all required assistance. On the second test occasion, of the 93 children who made drawings 31 attempted successfully to print their names and 8 printed their names after some assistance. Of the 31 children, 9 were from experimental groups and 4 were control children.

Seven of the experimental groups also printed sentences, of which 5 printed 'This is a room'. The other sentences printed were 'This is a seat' and 'This is a window'.

All succeeded in printing the sentences correctly. There were no reversals in the printing but the letters were often rather poorly formed. Five of the control children also printed sentences. All printed 'This is a room' successfully.

When sentences were printed, few other attempts were made. An additional 3 children of the experimental group and 1 of the control children attempted to print words. The words printed by the experimental group children were 'door' and 'head'. No errors were made in the printing. The 1 control child who attempted to print 'door',

put only one vowel in the word. Five of the experimental group children attempted to print other children's names as well but all required assistance. The names which these children selected were all of boys and girls who were with them during the twenty-eight meetings.

The extent of printing done by the children in the second investigation was very limited in comparison to the amount done by children in the first investigation. When it is considered, however, that no formal instruction in printing was taking place during the seven weeks, then the successes of the experimental groups and control children appear particularly significant. The teachers in the three classrooms sought to have the children recognize their names in print and this would seem to account for the increase in the number of children printing their names.

The final analysis was concerned with the extent of transfer to what the children put into their second drawings. The experimental group and control childrens' second drawings seemed greatly influenced by the content of what they had been reading during the twenty-eight meetings. Thus windows, doors, seats, trees, grass and roots appeared for the first time in a number of second drawings. Changes also seemed to have occurred in how the children made drawings of persons.

In order to test the extent of changes in the drawings, the representations of persons, made by the children on the two test occasions, were scored according to the Goodenough point system. The procedures used in the first investigation were again adopted in awarding points. After each child's drawings had been scored the

scores of 18 children were matched with those of the experimental group. In Table XXX the mean scores of the experimental, control and matched children are indicated for the two test occasions. Mean differences are also shown as well as t values of these mean differences.

TABLE XXX

MEAN SCORES, MEAN DIFFERENCES AND t VALUES OF MEAN DIFFERENCES OF DRAWINGS OF PERSONS MADE ON TWO TEST OCCASIONS BY CHILDREN COMPARED IN THE SECOND INVESTIGATION

Children	Mean Scores		Mean Differences	t Values of Mean Differences
	Occasion I	Occasion II		
Experimental	14.67	19.56	4.89	5.62
Control	12.61	15.17	2.56	3.94
Matched	14.67	14.83	.16	.22

N = 18 experimental group children;
18 control children;
18 matched children.

t - ratio probability levels:
.05 = 2.11
.01 = 2.90

The mean scores of these children on the first test occasion were on the average six points lower than the mean scores made by children in the first investigation. Again it must be noted that the children in the second investigation were younger persons and also had few opportunities in school to make drawings. On the second test occasion, however, the experimental group made a mean score almost comparable to the E groups' score (20.09) in the first investigation.

Both the experimental groups and control children increased their mean scores by a statistically significant extent on the second test

occasion while no significant difference was found between the mean scores of the matched children. The mean difference of 2.33 between the experimental groups and control children's gains yielded a t value of 2.16. This indicated that the difference in mean gains was significant at just better than the .05 level of confidence.

This latter finding pointed out more clearly what had been a trend in the first investigation. There was no significant difference found between the C I children's scores on the two test occasions. In the second investigation, a significant difference was found between the control children's scores but they did, however, not make as high scores on the second test occasion as the experimental groups. Thus, reading that was concerned with naming parts of the body plus increased attention to stick-figure representations of persons appeared to make a difference in what the children drew. The drawings made by the experimental groups were found to contain more significant characteristics (e.g. correct number of fingers) in their representations of persons.

Two other outcomes of the second investigation must be mentioned here. The Infant Mistresses who directed the groups commented, at the end of the twenty-eight meetings, that they had been most sceptical of the reading material and of the group procedures during the early meetings. They stated at the end of the experiment that they were most "amazed" at what the children had been able to do. One of the Infant Mistresses even offered the view that "a whole programme of reading instruction should be designed about the procedures used in the experiment".

The children who took part as experimental groups and control children during the experiment remained as two, distinct sections in

their classrooms. When the classrooms were revisited a month after the experiment had ended, the demarcations were still present in the classrooms and, according to the classroom teachers, the children who had taken part in the experiment "were making excellent progress". In one classroom (Y), these children had been able to complete the "pre- primer stage" of the reading programme in a total of three days while the other children required almost a month to do the same amount of reading.

(d) Discussion of the Outcomes of the Second Investigation.

The results of the second investigation were found to be in substantial agreement with those of Investigation One. The records kept by the three Infant Mistresses pointed out many of the same characteristics of learning that had been observed in the first investigation. In both studies, significant differences were found in the comparisons of those children who had been given the special sort of invitation to learn to read and those who had not. There were also significant differences found between those children who worked together with other children and those who were not in other children's company.

What differences were found in the comparisons of children in Investigation One and Two can be, for the most part, accounted for by the fact that the children in the second investigation were just beginning their first year at school. The marked similarities in the outcomes of the two investigations indicated that the Richards-Gibson reading material, as an invitation for learners to make an ordering study of language, could make significant differences in their language power and in their social growth.

SECTION VII

DISCUSSION OF THE OUTCOMES OF THE INVESTIGATIONS

The investigations reported in this thesis centred at that time point in the children's lives when they were starting the complex mental feat of "learning to read". For the children in the first investigation, activities that aimed at bringing about the mental feat represented the great proportion of each day in their first year at school. This first year at school was, for the majority of the children, the first stage in their long journey with printed symbols. It was a stage at which the learners were to be helped to organize, order and explore their growing world through the new control over language which reading could give them.

Although all the children had somehow learned to comprehend the speech of others and to use spoken symbols, their further growth in language power through learning to read was not brought about without considerable stress and difficulty for most of the learners. The children had learned to talk and to comprehend the speech of others, of course, in a situation in which the pressures were not so great. Observations during the early phases of Investigation One suggested, however, that the invitations presented to the children through which they were to learn to read were not as well graded, not made as easy or as comprehensible as they might have been.

All present-day authorities on beginning reading stress the supreme importance of success being felt by the learners right from the early stages. But for success to be felt, the learner must in a measure know what he is doing as a condition for knowing when he has done it. The diverse instructional programmes used in the eight classrooms gave only limited opportunities for early success in seeing how language is used. By the emphasis placed on phonic lessons, by the efforts to "build up a background of experience" so that printed symbols would have "meaning" and by giving the children reading material in the form of "stories", the three levels - phonemic, semantic and syntactic - that were intrinsically related together in the children's speech were separated from each other. This separation also entailed much extensive drill and rote repetition of letters, words and sentences. The observations of the work done by the children in the eight classrooms during the first six weeks of Investigation One, indicated that the majority of children had great difficulty in re-uniting the various parts of language that had been separated for special study. Learning could not be guaranteed even after extensive drill and repetition. And in place of success being felt by the learner through an increasing control over printed symbols, emphasis was placed in the instructional programmes on competitive games, external rewards and invitations to vicarious enjoyment.

The study of the work done by the C II children - and the outcomes of that work - during ten weekly meetings indicated something of the complexity and lack of order in the sort of language now commonly used to bring learning to read about. Each presentation sheet had "stories" printed beneath pictures that were supposedly illustrating the text. In reading these "stories", the children used the pictures to provide them with clues for the meanings of the printed symbols. The words and the sentences making up the "stories", however, often bore only a perfunctory relationship to the picture. The reading done by the children indicated that such a task could cause confusion and bewilderment not because the pictures provided no clues for the meanings of the printed symbols but because they elicited too many meanings.

The children had also to be concerned with the perceptual configurations of the printed symbols they interpreted. Although the children were working with a limited number of words, twenty-three different letters of the alphabet were used to make up these words. The letters occurred in a vast number of positions and included many items that could be confused with one another. This appeared to increase the complexity of the task. Even extensive repetition of the words could not guarantee that they would be perceived correctly. Also, on the Gates and Schonell tests the extra reading done by the C II children was found to make no significant difference in how they perceived letters and words.

There was also little transfer to the task of printing.

An analysis of the sort of language making up the C II children's task indicated that they had to be concerned with a small number of picturable words and a high proportion of structural words. All the children in both investigations found their greatest difficulty with words naming operations - the structure words in the sentences. These words are the parts of language which require extensive time before they are brought under control in children's speech (McArthy, 1954, pp. 551-562). They are also the parts of language by which other words are brought into significant relationship with one another (Richards, 1945, p.25). The task presented to the C II children was made up of a welter of these words and their diverse arrangement in the "stories" gave few opportunities for the children to see how they worked together with other words to handle various meanings.

In order to read what was printed on the sheets the C II children had to rely on their ability to remember words from one sentence to the next and from presentation sheet to presentation sheet. Few opportunities were provided for the learners to grasp the significance of the words in sentence situations and to understand the work the words did there. As the reading material increased in complexity, they were left without any power to handle new problems. Thus during the ten meetings there was

little reduction in the number of errors that were made. Also there was an increasing number of requests for assistance as more complex reading was attempted.

In reading what was printed on the sheets, the C II children had not only to see the words but also to conceive how the words worked. The reading material presented many opportunities for perceptual mistake and confusion, it provided little encouragement for the children to conceive of how language works, it gave little encouragement for the children to see clearly what they were doing and the pictures frequently distracted the children's attention from their study of the printed symbols. Reed (1946) has reported that in a concept attainment experiment, when the materials used were susceptible to perceptual mistake, when they were overly complex and were such that the subjects could not see clearly what they were to do, rote memory techniques were adopted by the learners. He reported that these techniques produced extensive "cognitive strain" in the learners. They did not develop any "strategies" for handling the problem or for handling any parallel problems.

There would seem to be a close parallel of Reed's findings with what was observed during the ten meetings of the C II children. The subjects in Reed's experiment and the C II children were both faced with a task that presented too many problems simultaneously. They could not see what they had to do to clear

their difficulties and relied only on rote memory. When too great a strain was put on their memory they had no other means of tackling the problem or any other similar problem.

Bruner (1956, p.56) has given extensive consideration to the conditions under which concepts are attained. He has pointed out the necessity for the learner to recognize clearly what he is supposed to do. The nature of the instances encountered are also considered to be vital for success. Bruner suggests the necessity of considering: (a) how many attributes each of the instances exhibits; (b) how many of these attributes can be clearly distinguished and how many invite confusion; (c) whether the learner encounters the instances in a systematic way and whether he has control over the order in which the instances are tested; and (d) whether the instances contain sufficient information for learning the concept. Bruner also puts great stress on the importance of "validation" - that at each stage the learner can confirm what he has done already and can prepare for later advances. Finally, he stresses the importance of the "consequences" at every stage in attaining a concept. He points out the importance of the learner recognizing when an error has occurred and when each step has been taken successfully.

The reading material prepared by Richards and Gibson seemed to take into account many of the conditions Bruner has detailed. The E groups and C I children in the first investigation and the

experimental and control groups in the second investigation were invited to read sentences aloud that had a central, clear, picturable meaning. The number of different letters used to make up the words and the number of different words making up the sentences were systematically controlled in the task set the learners. Further, the discriminability of these items was so arranged as to reduce, to a minimum, opportunities for early mistake and confusion. The sequences of the sentences were arranged so as to prepare for what was to follow and to confirm what had gone before. While significant changes were being introduced, the structural framework of the sentences was kept the same in a sequence. Finally, there was an absence of distractors in the material and avoidance of mere rote repetition. Throughout the task, the children were encouraged, through the words they studied, to perceive accurately and at every stage to recognize increasingly what they were doing.

The successes of the children who worked with the Richards - Gibson material in the two investigations suggested that such a task did not impose an order but elicited one - an order inherent in the children. Something of the extent of that order was indicated in the speech of the children as they told what they put into their drawings. They demonstrated that they could name objects and persons and locate them in space and time. They noted significant characteristics of the objects and persons with the

names of their qualities. They noted changes of position or condition of persons and objects, reported the comings and goings of persons in space and time and their simple, overt acts.

Only a small sample of the children's command of spoken symbols was elicited by the tests used in the experiments. The sampling did provide, however, an indication of the extent to which the children had learned to use language as the means for dealing with objects and persons in space and time. What the Richards - Gibson material appeared to do was to stimulate the learners to move out directly from their consummate skill in handling speech to further growth in seeing how that speech could leave its tracks on paper. In contrast, the Nisbet reading material appeared simultaneously either to elicit none of this order or to elicit too much.

In the control and the ordering of the Richards - Gibson material there can be found a parallel with procedures used by scientists to investigate inherent behaviour of simpler organisms. Their procedures have involved the systematic reduction of cues until those cues are found that will "release" inherent responses. Tinbergen (1951), for example, demonstrated that game birds will respond with flight reactions when a hawk-like silhouette is drawn on a wire across their pen. Tinbergen demonstrated as well that even for simpler organisms, the "releaser" involved complex relationships in the stimulus or environment. Thus when the

silhouette was moved in one direction the object was apparently perceived as a short-necked bird of prey. This perception prompted a flight reaction. When the silhouette was moved in the other direction, it apparently resembled a long-necked waterfowl and was ignored.

The procedures of systematically reducing cues until the ones are found that will consistently elicit responses have been used in studying infants' early behaviour. Spitz and Wolfe (1946), for example, demonstrated that certain specific cues will elicit a smiling response in young children even though these cues may have a grotesque appearance to the adult. The studies of infant behaviour have shown, however, that the cues or "stimulus" used to elicit responses must soon take into account increasing growth that comes about through biological processes and through learning.

The recent work of these scientists has considerably modified the conception of what has been called the "stimulus". Bruner (1956, p.33) maintains that the unit of analysis now called the "response" must be broadened considerably as well. He states that it "must encompass the long, contingent sequence of acts that more properly speaking can only be called a performance".

In the content and arrangement of the Richards - Gibson reading material there would seem to be a similarity with the revised conception of the "stimulus" now current in psychological learning theory. In turn, the observations of the children's work with the

Richards - Gibson material would also seem to be similar to the revised conception of the "response" advanced by Bruner. During both investigations, the children were observed many times. From these observations of a "long, contingent sequence of acts" various steps could be discerned in the children's growth in awareness of the meanings of printed symbols.

During the early meetings, the children were faced with a task which they had not seen before. The sentence 'This is a man' was first seen by the children only as an array of instances that could be uttered in a short statement about a simple, picturable fact. The next three sentences had the same structural form and the children, by reading the sentences correctly, appeared to recognize this. They had only to be concerned with the final word in the sentence. The accompanying pictures gave them the necessary clues for reading the sentences. The appearance of words seen before that were now in new positions in the sentences was the first source of difficulty for the children. The particular area of their problem indicated that in previous reading, sentence and word were not differentiated. Thus, the children had seemed to recognize the word 'hat' successfully in the sentence 'This is a hat', yet it was that word which they said they did not know in the sentence 'This hat is his hat'.

Right from the beginning steps, the children appeared to have imposed certain meanings on the total array. Few of the parts had

any definiteness, however. During the first meetings, what the children heard spoken and the total configurations of the sentence were used as the principal clues to the meanings of the printed symbols. As each new sentence was taken up, the readers appeared to recall something from the preceding reading. What they recalled, however, seemed very general and lacking in definiteness. They used this impression as a nucleus into and around which details were built so as to satisfy the general setting.

Bartlett (1932) in his now famous studies on remembering has demonstrated that recall is a constructive process. He maintains that from the very first presentation of material, there are efforts on the part of the learner to extract "meaning". He states (p. 176) that "it is this impression, rarely defined with much exactitude, which most readily persists". The persistent efforts of the children to fit their reading into the pattern 'This is a ---' indicated the pronounced impression that the initial presentation had on the learners.

In their early work, the children seemed to recognize that part of what they were reading was successful. In tackling more complex sentences, the modes of reading adopted suggested that the children were seeking to reduce the possibility of failure and to maintain something of their previous successes. Thus, they read new words as words which they had seen previously because the new

words had much the same perceptual configuration as the words met before. What was read immediately before was used for the next sentence without regard for the differences that were occurring in the new sentence. Words were added to a sentence, or were omitted, in order to fit in the old pattern. Even phrases were added to take the place of single words, and single words, in turn, could be used to take the place of a number of words not recognized.

In each of these modes of dealing with a problem in reading, the children appeared to utilize a certain nucleus that remained relatively constant. Werner and Kaplan (1952) have reported much the same findings for young children in their study of the acquisition of word meanings. These investigators maintain that young children "manipulate the sentence as a fluid medium lacking closure". They have also made an elaborate classification of the various modes children employ in dealing with the meanings of printed symbols.

Werner and Kaplan's study, however, was concerned with the acquisition of word meanings in a test situation where nonsense words were employed in various sentence contexts. The artificiality of such a test has been much criticised (Lewis, 1953). Further, their study was concerned with only a limited range of sentence sequences. In the oral reading protocols of the children in the first investigation, the modes of dealing with printed symbols were increasingly modified as the children gained a power in seeing the

words and in recognizing how the words worked together.

With each new sentence read, the children appeared to be testing what they had read before. In doing this, they restricted their attention to a limited range as if to keep the extent of strain within manageable limits. They indicated a reluctance to tackle more than one problem in a sentence and it was when too many problems occurred at once that they made requests for assistance.

When those requests came, they centred first of all on picturable words. These words appeared to be the first parts of the sentences that were made definite by the children and they were the words that were found to yield highest scores on the word-recognition tests. Once these words had been selected for attention, the children attempted, by examining their likenesses and differences with other words, to bring them under control. This comparing seemed to assure the learners that they could do correct reading. And by this assurance, they were encouraged to expand their attention to do increasingly more correct reading.

The extensive spontaneous re-reading that took place when the children recognized an error - and also a success - indicated that the children were seeking to make more definite those parts of the sentences which they had met before but had not mastered. The re-reading was also a mode used by the children to confirm what they had done and seemed also to aim at making it more certain that they would be successful in later reading. Their attention also focussed

increasingly on the structural words in the sentences as the number of meetings increased. It was these words that caused most difficulty for the children. The protocols indicated that as these words became more definite to the learners so, in turn, did many other parts of the sentences.

The increasing command of structure words was reflected in a smaller number of instances of re-reading. As the number of meetings increased, the children tended more and more to confirm one reading in the context of later reading. They also extended the range of their attention to encompass a number of sentences read before and even sentences to follow. They indicated a capacity to select certain parts of these sentences for making comparisons with a particular problem that occupied their attention. Their new vocabulary was apprehended through judicious guesses which were taken in the context of pictorial, semantic, syntactic and phonemic clues found in a wide range of sentences. Once the new vocabulary was apprehended in this way, the children immediately sought to confirm what they had done in later reading.

So far in this discussion, the modes of dealing with printed symbols, which were indicated by all the children who worked with the Richards - Gibson material, have been considered. The protocols of the C I children and E groups and the reports of the Infant Mistresses in the second investigation demonstrated, however, that children could learn from one another and aid each other in

their learning to an extent where significant changes were made in how they ordered their reading, speech, printing and drawing.

These significant changes did not come about at once but through the gradual emergence of groups. The six children who met together in each classroom, in both investigations, had not only to be concerned with reading printed symbols aloud but they had also to learn that other children could help them in their tasks and that they, in turn, could help others. Such learning - and the attendant emergence of groups - came about through the children making an ordering study of language together. Each of the children who met together were already skilled in using speech and in communing with one another through spoken words. The task they were now set invited each member to learn to do something that neither he nor any of his partners could yet do: see how speech can leave its marks on paper.

What each child did as he took a turn at reading was to utter a statement about a picturable fact. The words he read were so arranged as to invite comparisons and discriminations between what was read by every other member of the group. The children who worked together with the Richards - Gibson material - in contrast to the C II children's task - did not have to rely solely on their memory in order to read, they were able to use their discriminative capacities as well. And in place of reading material composed of stories with invitations to vicarious enjoyment, the Richards -

Gibson material began with fact and invitations to explore reality.

In the writings about classroom groups, no-one seems to have attempted, as yet, to explore the nexus of task and learners. Yet in other small group studies (Bales and Strodtbeck, 1951), increasing emphasis is now placed on the importance of considering the sorts of tasks that make the emergence of groups possible. The observations in the first investigation and the Infant Mistresses' reports in the second investigation demonstrated that the children who worked with the Richards - Gibson material were remarkably successful in learning from one another and in aiding each other in their learning. In doing this, they indicated characteristics of working together that distinguished them as groups as distinct from what Argyle (1952, p. 270) has referred to as "batches" of persons.

During the early meetings the group did not appear to be an aid to its members in their learning. Once, however, some of the members knew, in a measure, what they were doing, the group forced the readers to examine the modes they used in dealing with the printed symbols. Where children not working with others could persist in using modes that masked problems, the children in the group were forced to examine what they were doing. By seeing where they had gone wrong and by hearing what they had to do, later advances could be kept in order.

In their reading, each member of the group used various modes of dealing with the printed symbols. Certain of these modes were

more effective than others. By taking a turn, the reader had the opportunity of others' criticism by which he could test the effectiveness of the modes he used. Then by acting as a critic himself he could test not only how effective the modes used by other children were but also examine again how he should be proceeding in his reading.

This alternation of rôle, at one time acting as a critic and another as the one criticised, appeared to limit the extent of strain felt by any of the learners. As a critic, they were given a greater opportunity to explore what had to be done in the reading, to make comparisons over a wider range and to decide on what was, and was not appropriate for clearing the problem. When the time came for them to take their own turn, the time they had spent as a critic gave them a greater power to handle their own reading. Marks and Ramond (1951) have reported that, on a task where the subjects were directed to help a fictitious person who was described for them, significantly more solutions were made than by subjects who worked on the task designated as their own and where no other person was mentioned in connection with it. Their findings would seem to parallel closely what was observed in the groups as the children took turns at reading.

The majority of time spent by a child in the group was taken up with silent reading. This allowed for considerable back-translation and also for reading on ahead. A number of

investigators (e.g. Buswell, 1947) have emphasized that silent reading should be an important part of the early stages. In the groups, opportunities were provided for this but it was continually coupled with spoken language that could be used as the channel through which the printed symbols were given their meanings.

Hearing the speech of other children as they read aloud was only one of a number of dimensions by which the learner could validate his reading. The suggestions which other children made as he read aloud could be used as a criticism as well; he could use his own increasing mastery to test the accuracy of his work; he could use the criticism of extent of consensus in the number of children making suggestions; he could use the authority of a child whose continual success he recognized and he could use the sequences of successes of other children's reading after his own. Asch (1951) has demonstrated that a group, once formed, can play these important rôles in helping the members in their learning.

Often in the reading, all that the child seemed to need - and to want - was a reminder to prompt him to recall something that had been momentarily forgotten. Without other children to provide this aid, the momentary lapse of memory could cause the hesitation to assume the dimension of a problem so that more complex tasks in the sentence were not taken up. As the number of meetings increased, there was an attendant rise in the possibility of at least one child remembering something the other children might have forgotten.

Those children who did remember were thus able to provide assistance for the reader so that he could not only seek to bring the word under better control but could also take up other problems. Lorge (1955) has also pointed out how certain members can recall or see certain essential parts of a problem that can aid each of the members in their tasks.

The children who did not work in the company of other learners often made important discriminations but in their concern for what they were to read next, were oblivious to their success. In the group situation, the readers were not just reading for themselves or the experimenter but for other children whom they knew to be watching their work closely. Thus they were much more inclined to recognize and to feel their increased mastery as they read aloud and often to see their success revealed as well in others' reading. Modern learning theory to-day emphasizes that if reinforcement is to be maximal then the interval between performance and reward should be minimal (Hull, 1952, p.132). Both the reading material and the group situation appeared to provide the optimum conditions for this to take place.

In all their reading what seemed to hold the learners was their gradual mastery and their sense of growing power. The protocols indicated that the children did not just suddenly become aware of the meanings of the printed symbols. There were occasions, however,

when there seemed to be moments of insight when something was made definite or when something seen before was brought under more control. The examination of what had been done before and what followed these moments of insight or illumination indicated that the children were continually taking account of what varied with, what depended upon what.

It is difficult to find in the protocols any one place where the children could be said to have "attained a concept" or that they had "arrived at the meanings of printed symbols". The preeminent characteristic of the work they were doing was the search for wider and more perfect relevance. The children appeared to have an increasing awareness of mutual dependence that was noted, felt and participated in by the learners. This awareness was, in turn, imbedded in a long process.

A number of investigators have emphasized that cognitive activity is not entirely a handmaiden of other drives. Piaget (1951) for example, has given particular stress to what he calls a process of "decentration" that frees the individual's cognitive activity from the domination of "need-states" and makes it possible for the individual to be abstractly curious without being driven to do so by hunger, anger, threat of failure, etc.

In research on beginning reading, investigators have been much concerned as to when the child can be said to "know" a word. Even as early as 1931 Dale pointed out a caution to investigators that

"know" was a relative term. He emphasized that there are accretions to the meanings of words throughout life. The children who worked with the Richards - Gibson material - and more particularly those who worked together - in the two investigations, exhibited a growth in their ability to discriminate between meanings. Further, this growth was extended to keep other tasks more in order.

Thus in the Gates and Schonell subtests the children who had worked with the Richards - Gibson material made higher scores not because they could remember words through rote repetition but because they had learned to use effective modes in tackling the problem. The intensive study of an essential core of letters of the alphabet had made these letters more definite for the learners and they had also learned to take account of the order in which letters could occur in words. With each new task they also sought to confirm what they had done before and to recognize the similarities and differences of the new problem with problems met previously.

Coleman (1953) has demonstrated that perceptual retardation is a significant factor in reading disability. His research has also shown that perceptual development can often lag behind development of general intelligence. The outcome of the research reported in this thesis suggests that much can be done right from the early stages to encourage perceptual development.

The printing done by the children in the two investigations indicated that the sort of language through which children learn to read can make a difference in perceptual motor skills. The Richards - Gibson material and the learning done by children in the groups made a marked difference in what they selected to print and how well they did that printing. In this finding there is support given to those who have argued that growth in reading and writing should be developed concurrently. But what this research would seem to emphasize is the importance of the sort of invitation used to bring the growth about.

The changes that were observed in children's speech suggested that the cultivation of the ability to discriminate meanings of words on paper could transfer to ways by which the children could more effectively use their speech. The Richards - Gibson material appeared to encourage a good understanding of essential words. Ayer (1955, p.23) has emphasized that if a thought is to be a thought of something or a thought that such and such is so, it must be expressed in symbols of some sort. He states: "that the thought which we are unable to put into words is vague and inchoate the symbols in which it is imbedded are fragmentary; they do not fit together or not in any way that satisfies us. As we find more appropriate expression for it, the thought itself becomes more definite". By their increased understanding of essential words, the children who worked with the Richards - Gibson material also

seemed to improve their ability to make their thought and their speech more definite.

Significant differences were also found in what these children put into their drawings of persons. McHugh (1945) as well as Goodenough and Harris (1950) have pointed out how children's drawings of persons can change after they have been at school for some time. No studies, however, seem to have been done on how these changes come about. The outcomes of the two investigations indicated that there can be a direct transfer of what children are invited to read about to what they put into their drawings. The differences between the drawings of these children who worked in a group and those who did not, indicated further that the kind of attention children had to give in their task of learning to read could transfer to the kind of attention they gave in making drawings of persons.

Those children who worked together on the Richards - Gibson material not only evinced a greater language power but also improved social growth. Thus, the ways by which the children helped each other and the ways in which that helping changed as a greater command of language was attained, the children's recognition of each other's strengths and weaknesses, the children's co-operation and the absence of conflict between members were all characteristics that bear a marked similarity to what French (1954) has demonstrated go to make up "cohesive groups". Such "cohesion" came about primarily through the sort of task set for the children.

In contrast to these findings was the lack of "groupness" of those children who worked with the Nisbet material and those children in single-age classrooms who were studied in the 1952 research (MacKinnon, 1952). The outcomes of the investigations reported in this thesis suggest a programme of research for carrying forward the study of how young children, during early years at school, become aware of the meanings of printed symbols. Such a programme would seem to require that a reform in beginning reading instruction for all the children in the classrooms should be attempted. An intensive study over an extended period of time would seek to explore, first, the steps children take over this period in learning to read and secondly how children, all the same age in a total classroom setting, learn from one another and aid each other in their learning. Only after such a study, would it be possible to explore adequately how older children can help younger children in their learning. Although such a programme would seem a particularly complex research endeavour, many of the procedures in the present investigation would seem applicable for use on a broader scale of research. The outcomes of the present research would also seem to invite the co-operative efforts of many specialists.

In the present day, the attention of these specialists seems to have been directed away from intensive studies of beginning reading. There has been a marked decline in the number of studies during the past five years. Maxwell (1954, p.359) writing in the Annual Review

of Psychology summed up the situation thus: "It appears as if the subject of elementary reading has been virtually exhausted". There can be no doubt about the multitude of studies done on "reading skills". Follow-up studies have been extensive and whole books have been written in which the outcomes of the research have been directed to the ways by which the "skills" might be brought about.

What the present research appears to do primarily is to act as a reminder of the fact that how young children do learn to read is still little understood. This is a fact that is stressed by most of those who have spent the majority of their lives studying the early stages of reading. Gates (1947), for example, states: "despite the quantity of experimental data, the wealth of ingenious teaching devices, the range of interesting children's reading material and the large amount of school time available for teaching reading, a surprisingly large number of pupils still experience difficulty in acquiring even the most simple reading skills".

There would thus seem to be a vast area of study here at which the attention of many specialists might focus. Although direct comparison was not possible in the present research, much of Bruner's experimental work and theory on "strategies in thinking" are closely paralleled in the research and outcomes reported in the two investigations. Also in the area of studies of children's thinking there can be found many parallels in the oral reading protocols.

The crucial importance of the work the child is doing for his future makes this field also particularly significant for those especially concerned with child development, teaching methods, measurement and testing and personality studies. In turn, the comparative simplicity of the work the child is asked to do permits intensive study and more rigorous experimental control.

The present research has emphasized the tantamount importance of considering the nexus of task and learners in the study of beginning reading. The Richards - Gibson material used in the two investigations would seem to invite much further study. In the protocols there are numerous indications that suggest how modifications of the material could make learning to read even easier and more instructive. Within the limits of its experimental character, however, the material would seem to warrant its use as a focal point for further experimentation as well as for a reform in beginning reading instruction.

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APPENDIX I

RICHARDS-GIBSON READING MATERIAL USED IN THE TWO INVESTIGATIONS

Appendix I indicates the content of presentation sheets 1 to 72. In the first investigation 46 of these sheets were used; in the second investigation all 72 were employed.

The letter (P) indicates that a drawing was placed in juxtaposition with the sentence or sentence sequences. The number before each sentence indicates a "turn" for reading aloud and corresponds to the notations used in the protocols. Thus, sentence 1 on the first presentation sheet was designated R1.1, sentence 3 on the second presentation sheet was designated R2.3, etc.

Beneath the sentences of a presentation sheet are shown those words which are introduced for the first time. The cumulative intake of letters of the alphabet is also indicated for each presentation sheet.

Presentation Sheet 1.

1 This is a man. (P)
2 This is a hat. (P)

hat man a is this
a hi mn st

Presentation Sheet 2.

1 (P) This is a man.
2 (P) This is a hat.
3 This hat is his hat.

his
a hi mn st

Presentation Sheet 3.

1 This is a man. (P)
2 This is a hand. (P)
3 It is his hand.

hand it
a d hi mn st

Presentation Sheet 4.

1 This is a man.
2 This is his hat.
(P) 3 His hat is in his hand.
4 It is in his hand.

in
a d hi mn st

Presentation Sheet 5.

(P) (P)
1 This is a hat and this is a hat.
(P) (P)
2 This is a hand and this is a hand.
(P) (P)
3 This is a hat and this is a hand.

and
a d hi mn st

Presentation Sheet 6.

1 This is a man. (P)
(P)
2 This is his hat and this is his hand.
(P) 3 This is his hat.
4 It is in his hand.

-
a d hi mn st

Presentation Sheet 7.

1 This is a man. (P)
2 This is his hand. (P)
3 This is his head. (P)

head
a de hi mn st

Presentation Sheet 8.

(P) (P)
1 This is a head and this is a head.
(P) (P)
2 This is a hat and this is a hand.

-
a de hi mn st

Presentation Sheet 9.

1 This is a man.
2 This is a hat. (P)
3 It is his hat.
4 This is a head (P)
5 It is his head.
6 This is a hand. (P)
7 It is a hand.

a a de hi mn st

Presentation Sheet 10.

(P) 1 This is a man and this is his hat.
(P) 2 This head is his head.
3 It is his head.
(P) 4 This hand is his hand.
5 It is his hand.

a de hi mn st

Presentation Sheet 11.

1 This is a man's head. (P)
(P)
2 This is his hat and this is his head.
3 His hat is in his hand. (P)
4 It is in his hand.

a de hi mn st

Presentation Sheet 12.

(P) 1 This man is in a seat.
2 He is in a seat.
3 This is a seat and this is a seat.
(P) (P)

seat he

a de hi mn st

Presentation Sheet 13.

1 This is a man.
2 This is his hair.
3 This is his arm. (P)
4 This is his hand.
5 This is his head. (P)
6 This is his ear.

hair arm ear

a de hi mn rst

Presentation Sheet 14.

1 (P) This is a man and this is a man. (P)
2 (P) This is an arm and this is an arm. (P)
3 (P) This is a hand and this is a hand. (P)

an

a de hi mn rst

Presentation Sheet 15.

1 This is a man's head.
2 This is his hair. (P)
3 These are his ears. (P)
4 This is hair and this is an ear.
5 These are hairs. (P)

these are hairs.

a de hi mn rst.

Presentation Sheet 16.

1 (P) This is a rat.
2 It is a rat.
3 This is its head.
4 (P) These are its ears.
5 These are hairs.

rat its ears

a de hi mn rst

Presentation Sheet 17.

1 This is a man. (P)
2 These are men. (P)
3 This is a hat. (P)
4 These are hats. (P)
5 This is a rat. (P)
6 These are rats. (P)

men hats rats

a de hi mn rst

Presentation Sheet 18.

1 This is a man's head.
2 (P) These are his arms.
3 These are his hands.
4 (P) These are his ears.

arms hands

a de hi mn rst

Presentation Sheet 19.

1 This is a hat. (P)
2 This is a man. (P)
3 The hat is his hat.
4 This is a shirt. (P)
5 The shirt is his shirt.
6. These are shirts. (P)

the shirt shirts

a de hi mn rst

Presentation Sheet 20.

1 This is a man. (P)
2 That is a man. (P)
3 This is a hat. (P)
(P) 4 That is a hat.
5 This is a rat. (P)
6 That is a rat. (P)

that

a de hi mn rst

Presentation Sheet 21.

1 This is a man. (P)
2 He is here.
3 That is a man. (P)
4 He is there.
5 That hat is there. (P)
6 It is there.

here there
a de hi mn rst

Presentation Sheet 22.

(P) 1 That man is Mr. Smith
2 He is there.
(P) 3 His shirt is here.
4 These are his shirts. (P)
5 The shirts are here.
6 He is there.

Mr. Smith
a de hi mn rst

Presentation Sheet 23.

1 This man is Mr. Smith.
2 His name is Smith.
3 He is Mr. Smith. (P)
4. Mr. Smith is his name.
5 This is Mrs. Smith.
6 Her name is Smith.
7 She is Mrs. Smith. (P)
8 Mrs. Smith is her name.

name she her Mrs.
a de hi mn rst

Presentation Sheet 24.

(P)
1 This is a train.
2 This man is here. 3 He is here.
4 (P) His hat is in his hand.
5 These men are in the train.
(P)

train
a de hi mn rst

Presentation Sheet 25.

1 The man in the train is Mr. Smith.
2 He is here.
3 This is a seat. (P)
4 These are seats.
5 Mr. Smith is in his seat in the train.

seats
a de hi mn rst

Presentation Sheet 26.

(P) (P)
1 This is a seat and this is a seat.
2 These are seats.
(P) 3 This is a tree.
4 It is a tree.
(P) 5 These are trees.
6 These are three trees.
(P) 7 These are three seats.

tree three trees

a de hi mn rst

Presentation Sheet 27.

1 This is a rat and this is a rat and this is a rat. (P)
2 These are rats.
3 Three rats and three rats and three rats are nine rats.
4 These are nine rats. (P)

nine

a de hi mn rst

Presentation Sheet 28.

1 Three men and three men and three men are nine men. (P)
2 Here are nine men. (P)
3 And here are ten men. (P)

ten

a de hi mn rst

Presentation Sheet 29.

1 This is a tree. (P)
2 That is a tree. (P)
3 These are trees. (P)
4 Those are trees. (P)
5 These are nine trees. (P)
6 These are ten trees. (P)
7 That is one tree. (P)

those one

a de hi mno rst

Presentation Sheet 30.

(P) 1 This is a seat.
2 These are its arms.
3 That is a man.
4 Those are his arms.
5 His hat is not in his hand.
6 It is on his head.

on not

a de hi mno rst

Presentation Sheet 31.

1 Here are three men and three seats.
(P)
2 The men are in the seats.
3 The seats are in a train.

(P)
4 The train is in the station.

station

a de hi mno rst

Presentation Sheet 32.

1 This is Tom.
(P) 2 This is his head.
3 This is one arm.
4 This is the other arm.
5 This is one hand.
6 This is the other hand.

other Tom

a de hi mno rst

Presentation Sheet 33.

1 This is his head.
2 This is his hair. (P) 3 It is on his head.
4 This is one ear. 5 This is the other ear.
6 This is his nose.
7 This is his hat.
8 It is not on his head.

nose

a de hi mno rst

Presentation Sheet 34.

1 This is a rat.
(P) 2 This is its nose.
3 These are hairs.
4 The hairs are on its nose.
(P) 5 These are its teeth.
(P) 6 This is a tooth.
7 It is one tooth.
(P) 8 These are three teeth.

tooth teeth

a de hi mno rst

Presentation Sheet 35.

1 Here are three rats. (P)
2 Here are their noses. (P)
3 Here are three men. (P)
4 Here are their heads.
5 Here are their noses. (P)
6 Here are their ears. (P)

their noses

a de hi mno rst

Presentation Sheet 36.

1 (P) This is a room (P)
2 This is the door.
3 That is a seat.
4 The seat is in the room.
5 A hat is on the seat.
6 The hat and the seat are in the room.

room door

a de hi mno rst

Presentation Sheet 37.

1 Here is a man.
2 He is not Mr. Smith.
3 He is another man. (P)
4 His name is Read.
5 He is Mr. Read.
6 His hat is in his hand.
7 Here is his son.
8 His name is Tom.
9 He is Tom. (P)
10 His hat is on his head.

another Read son
a de hi mno rst

Presentation Sheet 38.

1 Mr. Read and his son are in this room. (P)
2 Mr. Read is in his seat. 3 Tom is at the door.
4 Mrs. Read is not in the room.
5 This is Mrs. Read.
(P) 6 Mrs. Read is Tom's mother.
7 She is his mother.
8 He is her son.

mother she her
a de hi mno rst

Presentation Sheet 39.

1 Here are Mrs. Read and her three sons. (P)
2 She is their mother
3 Here is one son. (P)
4 Here is another son. (P)
5 And here is the other son. (P)
6 Their names are Tom, Ted and Dan.

names Ted Dan
a de hi mno rst

Presentation Sheet 40.

(P) 1 This is a street.
2 A store is in the street.
3 Three trees are in the street.
4 This is the store.
(P) 5 This is its door.
6 Hats and shirts are in the store.

street store
a de hi mno rst

Presentation Sheet 41.

1 That is Tom (P)
2 He is in his room
3 These are his shoes.
4 This is one shoe. (P)
5 And this is the other shoe. (P)
6 Tom is on a seat.
7 His shirt is on another seat.

shoe shoes
a de hi mno rst

Presentation Sheet 42.

1 That is the moon.
2 That is a star. (P)
3 There is another star and another.
4 Those are three stars.

(P)
5 This is the earth.
6 Those are three trees on the earth.

earth star stars moon
a de hi mno rst

Presentation Sheet 43.

1 This is a tree.
2 These are its roots. (P)
3 Its roots are in the earth.
(P)
4 This is a root and this is a root and this is a root. (P)
5 These are roots. (P)

roots roots
a de hi mno rst

Presentation Sheet 44.

1 This is a room.
2 This is one door. (P) 3 This is another door.
4 Tom and his mother are in the room.
5 His mother is Mrs. Read.
6 She and her son are here.
7 Mrs. Read and Tom are in this room.
8 Mr. Read is not in the room.

a de hi mno rst

Presentation Sheet 45.

(P) 1 Mrs. Read is a woman.
2 She is a woman. (P)
3 A man and a woman are in this room.
4 The man is at the door.
5 The woman is at the window.
6 He is not at the window.
7 She is not at the door.

woman window
a de hi mno rst w

Presentation Sheet 46.

(P) 1 This is one woman.
2 These are two women. (P)
3 This is a window.
(P) 4 Two windows and one door are in the room.
5 Two men and two women are in the room.

women windows two
a de hi mno rst w

Presentation Sheet 47.

1 Here is one word. at
2 Here is another word. hat
3 Here are two words. at hat
4 Here is one word. an
5 Here is another word. and
6 And here is another word. hand
7 These are three words. an and hand
word
8 This is a word. 9 It is a new word.

word words new
a de hi mno rst w

Presentation Sheet 48.

1 This is a town.
(P)
2 This is one street in the town.
3 One man is in the street.
4 He is in this street in the town.
5 Two stores are in the street.
6 Men and women are in the stores.

town stores
a de hi mno rst w

Presentation Sheet 49.

1 This is a dog.
2 This is his head. (P)
3 These are his ears.
4 This is his nose.
5 These are his teeth. (P)
6 This is one tooth and (P)
this is another tooth. (P)
7 Here are two dogs. (P)

dog dogs
a de ghi mno rst w

Presentation Sheet 50.

1 This is a garden.
(P)
2 A woman is in the garden. 3 Three dogs are in the garden. 4 She is with the dogs in the garden. 5 The woman and her dogs are together. 6 There are two trees in the garden.

with garden together
a de ghi mno rst w

Presentation Sheet 51.

1 Here is the garden again.
(P)
2 The dogs are not in the garden now.
3 Now the dogs are not with the woman.
4 She is on the grass. 5 This is grass.
(P)

again now grass
a de ghi mno rst w

Presentation Sheet 52.

1 Now the woman is on a seat in the garden. (P)
2 The seat is on the grass. 3 The grass is green. 4 Her dress is white. 5 Her hat is on the seat. 6 It is a red hat. 7 It is red.
8 This is her dress. (P)

green dress white red
a de ghi mno rst w

Presentation Sheet 53.

1 What is this? (P) 2 It is a station. 3 What is this? 4 It is a train.
5 What are these?
6 These are streets. (P)
7 The streets are in a town.
8 What are those?

what
a de ghi mno rst w

Presentation Sheet 54.

1 Where is Tom?
2 He is on a seat.
(P) 3 Where is his hat?
4 It is in his hand.
5 Where is his hair?
6 It is on his head.

7 These are his teeth.
(P) 8 His teeth are in his head.
9 Where are his teeth?

where
a de ghi mno rst w

Presentation Sheet 55.

1 That is Tom.
2 He is not in the garden.
3 He is in the street. (P)
4 His hat and his shirt are white.
5 His hat is not on his head.
6 It is in his hand.
7 His dog is with him.

him
a de ghi mno rst w

Presentation Sheet 56.

(P)
1 Now Tom is at the store. 2 There are some things in the window. 3 What are the things in the window? 4 The things in the window are hats, shirts, dresses and shoes.

some things dresses
a de ghi mno rst w

Presentation Sheet 57.

1 What is a thing?
2 A shoe is a thing. 3 Shoes are things.
4 A shirt is a thing. 5 Shirts are things.
6 Dresses and hats are things. 7 Doors and windows are things. 8 Seats and trains are things. 9 A tooth is a thing. 10 Teeth are things. 11 A tree is a thing. 12 Trees are things. 13 The earth and the stars and the moon are things. (P)

things trains
a de ghi mno rst w

Presentation Sheet 58.

1 Who is that?
2 That is Tom's sister.
(P) 3 Her name is Ann.
4 Where is she?
5 She is at the window.
6 Tom is in the street with his dog. 7 His dog is with him. 8 Ann is not with him. 9 She is not in the street. 10 She is in the room at the window.

who sister
a de ghi mno rst w

Presentation Sheet 59.

1 This is Tom's room. 2 His bed is in the room. 3 This is his bedroom. 4 There are two seats in the room, and two windows. (P)
5 Tom is not in the room. 6 He is with Ann in another room. 7 Tom is Ann's brother.
8 Ann is Tom's sister.

bed bedroom brother
ab de ghi mno rst w

Presentation Sheet 60.

(P)
1 This is another room. 2 Tom is with his sister in this room. 3 Tom's dog is in the room with them. 4 He is at the window on a seat.
(P)
5 What is this? 6 It is Tom's train.

them
ab de ghi mno rst w

Presentation Sheet 61.

1 This is a horse.
2 It is a white horse.
3 Its hair is white. (P)
4 These are its legs.
5 That is its tail.
6 This is one leg. (P)
7 This is another leg.
8 These are its other two legs. (P)

horse leg legs tail its
ab de ghi lmno rst w

Presentation Sheet 62.

1 This new letter is the letter l.
2 There is an l in the word leg.
3 There is an l in the word tail.
4 What other letters are in the word leg?
5 What other letters are in the word tail?
6 The other letters in leg are e and g.
7 The other letters in tail are t, a and i.

letter letters
ab de ghi lmno rst w

Presentation Sheet 63.

1 This is a goat.
2 A goat is an animal. (P)
3 What are some other animals?
4 A dog is another animal.
5 A rat is another animal.
6 Horses and dogs and rats are animals.
7 What is another animal?

goat animal animals
ab de ghi lmno rst w

Presentation Sheet 64.

(P) 1 Here are two goats.
2 Their heads are together.
3 What are those things on their heads?
4 Those are horns.
(P) 5 This is one horn.
6 And this is another.
(P) 7 Some horns are long.
(P) 8 Some horns are short.

their horns horn long short
ab de ghi lmno rst w

Presentation Sheet 65.

1 A goat's tail is short. (P)
2 Its legs are long.
3 A rat's tail is long.
4 Its legs are short. (P)
5 This dog's tail is short.
6 Its legs are long.
7 This dog's tail is long.
8 Are its legs long or short? (P)

or
ab de ghi lmno rst w

Presentation Sheet 66.

1 This is a line. _____
2 This line is short. ____
3 This line is long. _____
4 This is a long word. animal
5 This is a short word. an
6 Some words are long and some words are short.
7 What is this word? on
8 Is it long or short?

line
ab de ghi lmno rst w

Presentation Sheet 67.

1 Here are Mr. and Mrs. Read.
2 Mr. Read's hair is short. (P)
3 Mrs. Read's hair is long.
4 And here are Tom and Ann. (P)
5 Is Tom's hair long? 6 No, it is short.
7 Is Ann's hair short or long?
8 It is long. 9 Ann is a girl.
10 This girl's hair is short. (P)

girl

ab de ghi lmno rst w

Presentation Sheet 68.

1 Mr. Read's legs are long.
(P) 2 His son's legs are short.
3 Ann's dress is short.
(P) 4 Her mother's dress is long.
5 Here is Tom's dog.
(P) 6 Its nose and ears are long.
7 Its legs are short.
8 Is its tail short or long?

ab de ghi lmno rst w

Presentation Sheet 69.

1 What is this? 2 It is an island.
3 This is water. (P)
4 This is an island.
5 The island is in the water.
6 Three trees are on the island.
7 There is grass on the island.
8 The trees and the grass are green.

island water

ab de ghi lmno rst w

Presentation Sheet 70.

(P) 1 This is water.
(P) 2 This is a glass.
3 There is some water in the glass.
(P) 4 Here is another glass.
5 It is in a man's hand.
6 There is no water in this glass.
(P) 7 These are glasses.
8 There is some water in them.

glass glasses

ab de ghi lmno rst w

Presentation Sheet 71.

1 This is water. (P)
2 This water is the sea. 3 This is sand.
4 Those are two islands in the sea.
5 Two trees are on one island.
6 There are three trees on the other island.
7 The trees are green.
8 Tom and Ann are on the sand.

sea islands sand

ab de ghi lmno rst w

Presentation Sheet 72.

1 Now Tom is in the water.
2 His feet are in the water.
(P) 3 His feet and legs are wet.
4 Ann is not in the water.
5 Her feet are not wet.
6 Those are her feet.
7 This is one foot.
(P) 8 It is one of her feet.
9 This is her other foot.

feet wet foot of
ab defghi lmno rst w

APPENDIX II

TESTS USED TO COMPARE CHILDREN WHO HAD WORKED WITH THE RICHARDS-GIBSON READING MATERIAL UNDER TWO EXPERIMENTAL CONDITIONS.

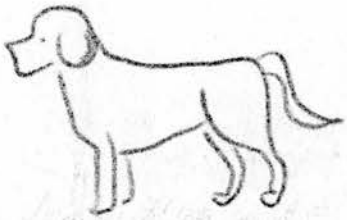
The nine tests shown in Appendix II were administered individually to (1) those children in the two investigations who had worked with the Richards-Gibson reading material while in the company of other learners, and (2) those children in the two investigations who had worked with the material while not in the company of other learners.

The sentences, words and letters enclosed in brackets represent those items which the children had to select in order to do the subtest correctly. For each test, the items to complete each blank space were printed on pieces of heavy paper which corresponded exactly in size with the blank spaces. The spaces on each page, in turn, were all equal in size. Before a child was asked to do a test, the pieces of paper were placed directly above the test page. They were arranged in a left to right order so that the child had to study what was on the page and what was printed on all the pieces of paper before a correct selection could be made. In Test No. 1, for example, the pieces of paper were arranged in the order: (a) This hat is his hat; (b) This is a hat; and (c) This is a man. The letters placed next to the blank spaces in the following test pages indicate the randomized order of the pieces of paper.

Test directions were as follows: "I want to see how well you can find the pieces of paper which will go into these spaces. Look carefully at the drawings and what is printed on the pieces of paper at/

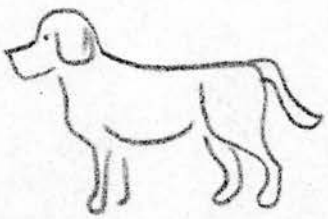
at the top of the page. Now let me see if you can find the pieces of paper which go into the spaces." After the children had made their selections for a page, they were asked to read the sentences on the page aloud. Changes which the children wished to make in the light of this reading were permitted. The same directions as given above were used for each new test attempted, with one slight modification. When sentences and words occurred on the test page as well as drawings, the children were directed to: "Look carefully at the drawings and what is printed on the page and look carefully at what is printed on the pieces of paper at the top of the page."

Test No. 1



(This is a man)

(c)



(This is a hat)

(b)

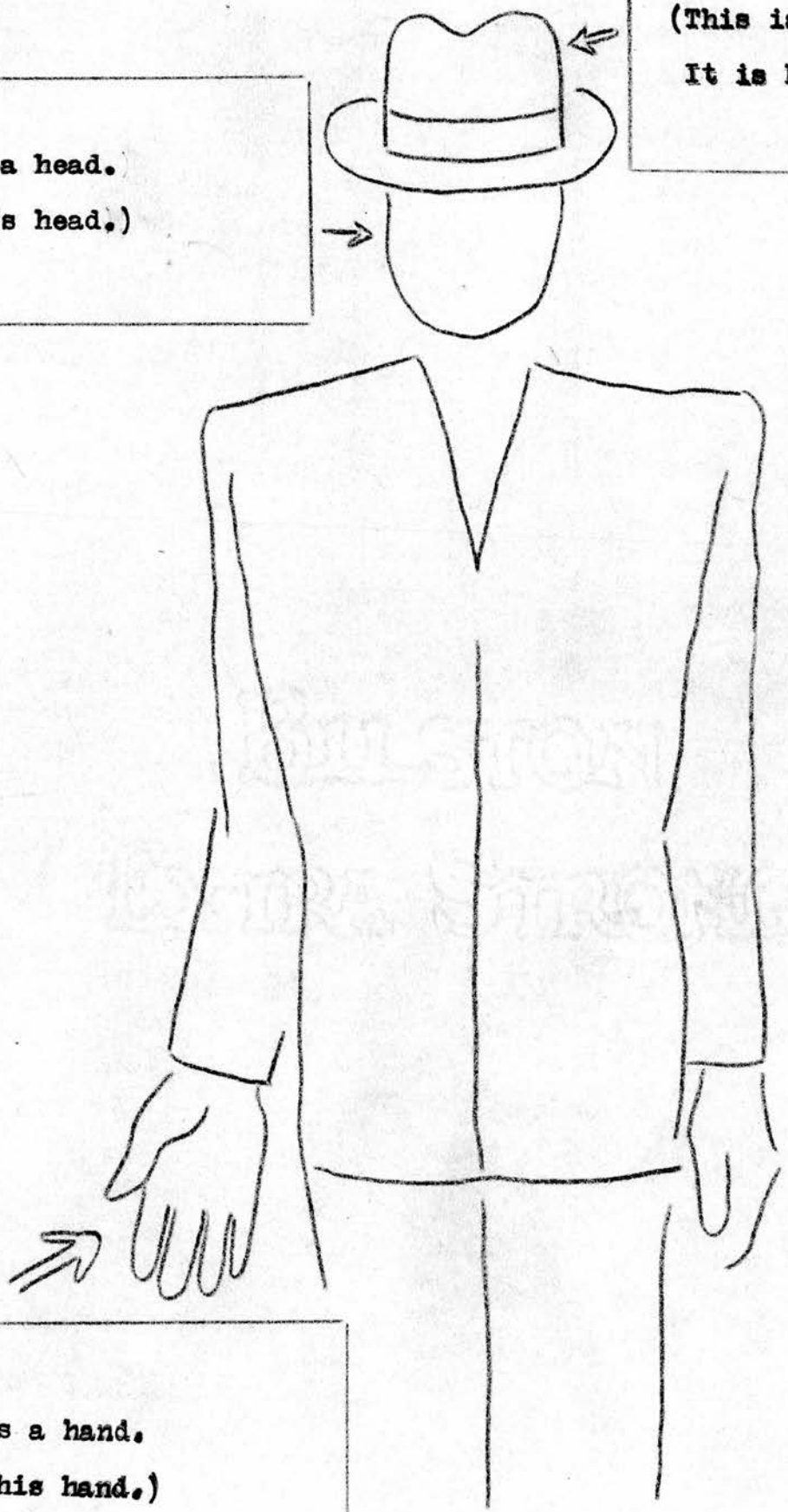
(This hat is his hat)

(a)

(a)

(This is a hat.
It is his hat.)

(This is a head.
It is his head.)



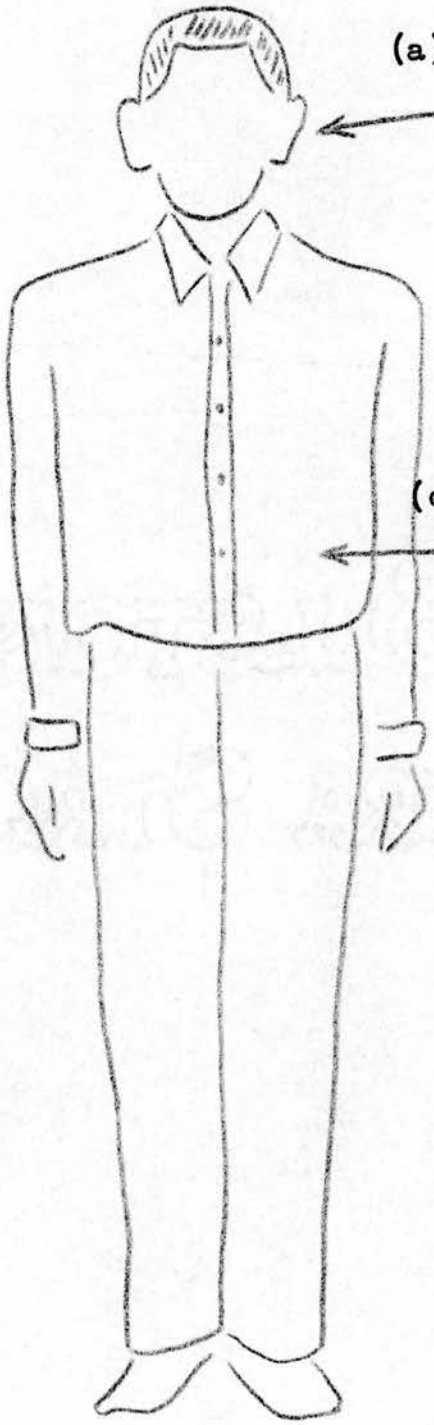
b)

(This is a hand.
It is his hand.)

(b) (This is his hair.)

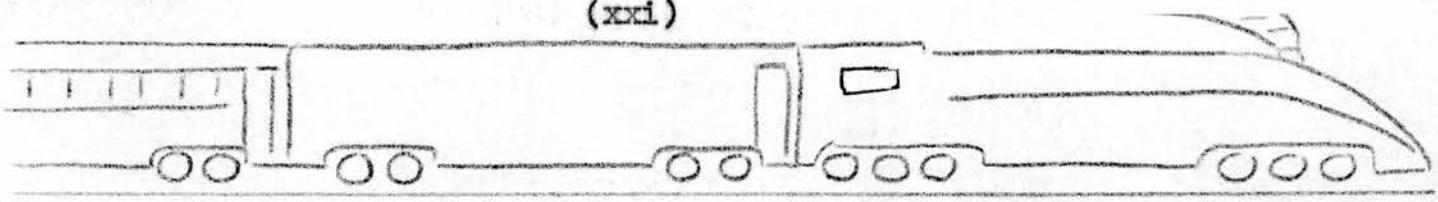
(a) (This is his ear.)

(c) (This is his shirt.)



This is a man.

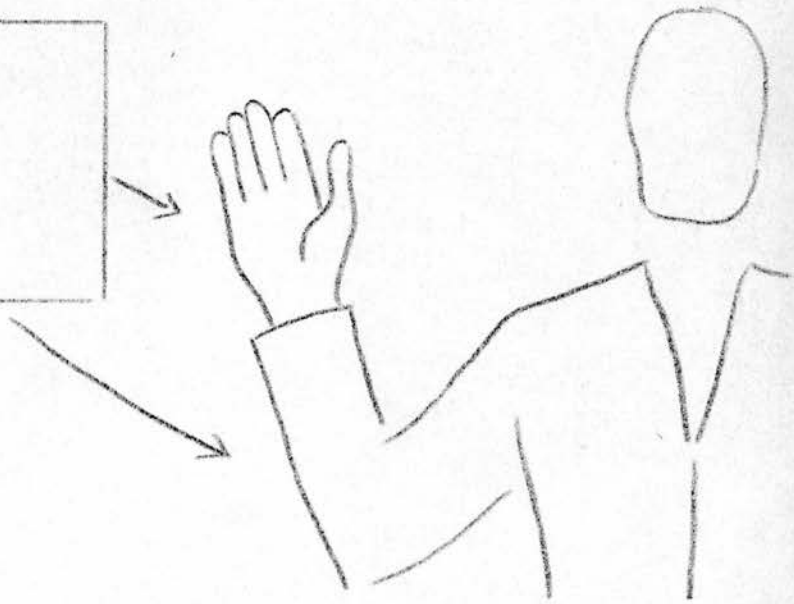
Test No. 4



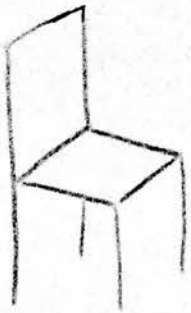
(c) (This is a train.
It is a train.)

(b) (This is a man.
His hat is in his hand.)

a) (This is his hand.
This is his arm.)

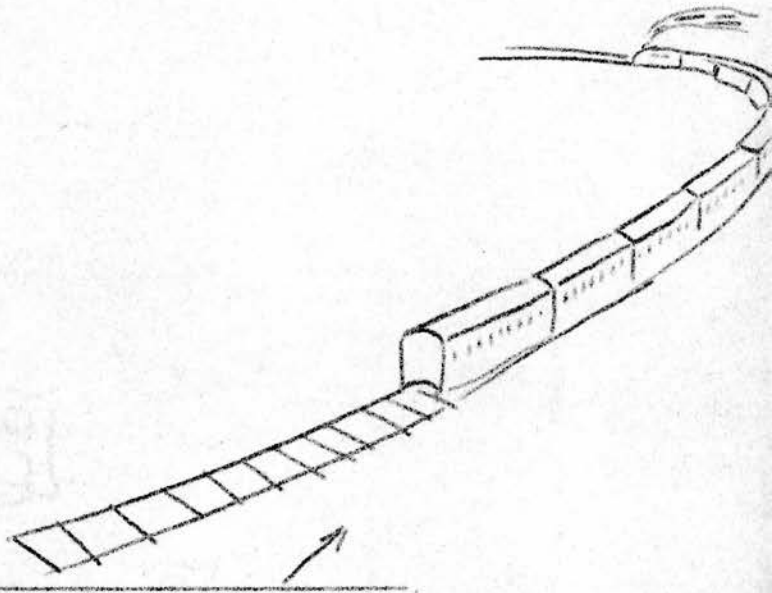


Test No. 5



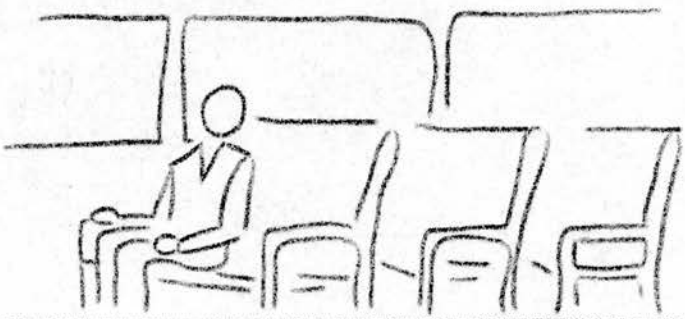
(b)

(This is a seat.
And this is a seat.)



(a)

(This is a train.
It is a train.)



(c)

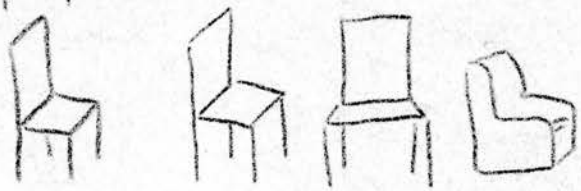
(The man is in the train.
He is in the train.)

(d)

(This) is a seat.

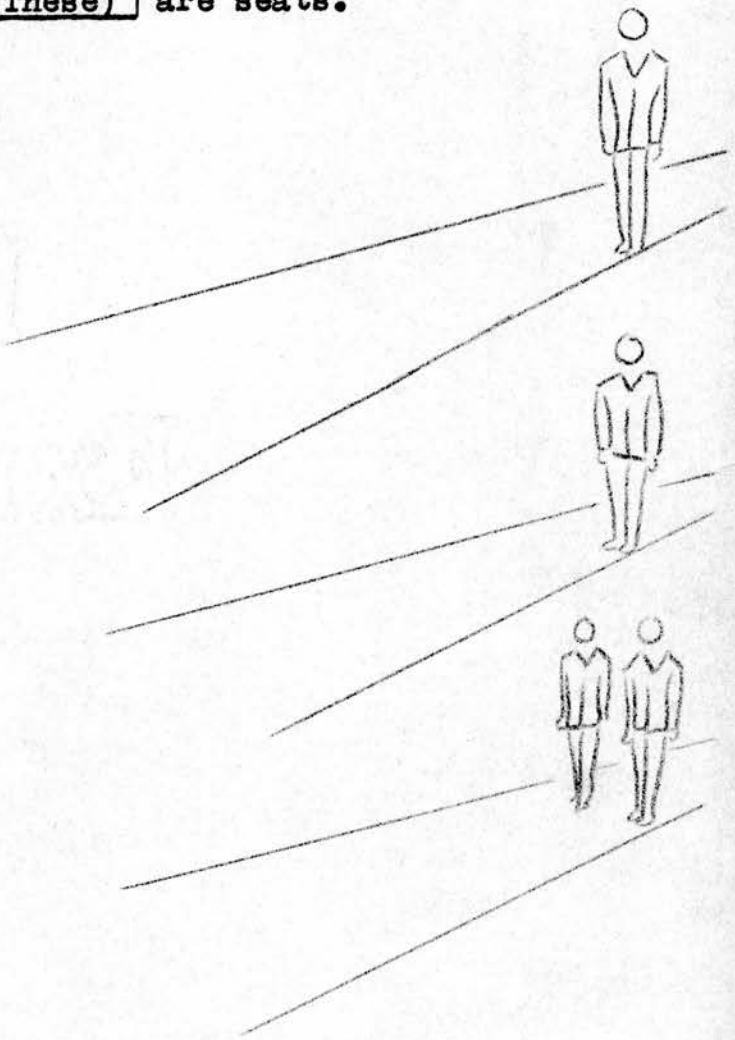
(b)

And (this) is a seat.



(f)

(These) are seats.



(e)

(That) is a man.

(a)

(And) that is a man.

(c)

(Those) are men.

Test No. 7

This is a man.

(d) [(This)] is his arm.

And this is his [(arm)] (b).

This is a [(nose)] (h).

And these are [(teeth)] (c).

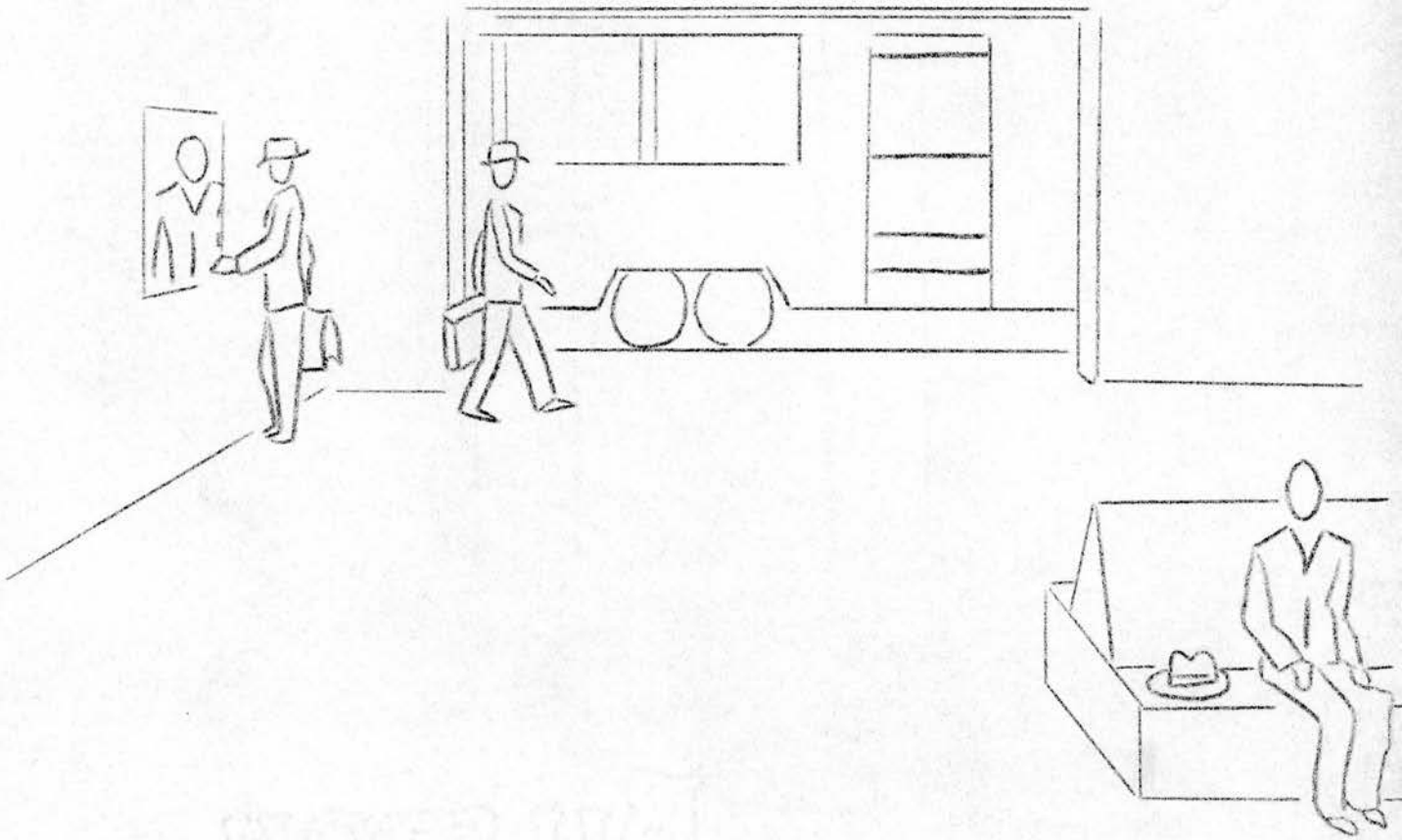
This is a [(tooth)] (f).

[(These)] (a) are teeth.

This is a [(hand)] (g).

And this [(is)] (i) a hand.

These are [(hands)] (e).



(c)
This [(is)] a station.

(e)
Men are [(in)] the station.

(a)
A man is [(on)] a seat.

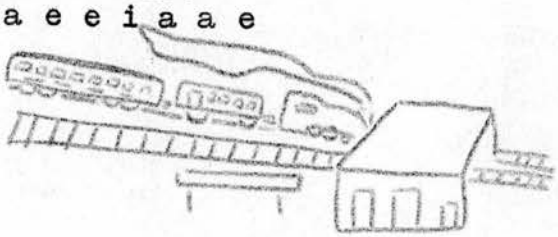
(d)
His hat is [(not)] on his head.

(f)
[(It)] is on the seat.

(b)
The [(man)] and his hat are on the seat.

Test No. 9

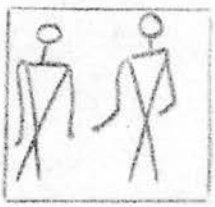
Arrangement of letters to be used to fill in blanks:
e i o A e a o i e a s a o a i a e I e a i a e e i a a e



Th(a)t is a tr(a) (i)n.

(A)nd th(a)t is a st(a)tion.

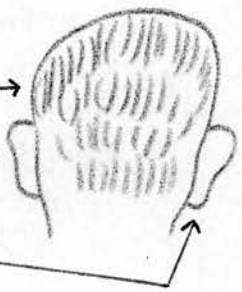
Th(e)se (a)re arm(s).



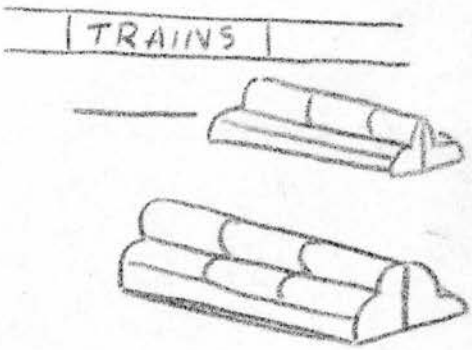
Th(e)se ar(e) m(e)n.

That is h(a) (i)r.

Th(e)se are (e) (a)rs.



These ar(e) n(o)ses.



Those are s(e) (a)ts in a stat(i) (o)n.

Th(i)s is (a) sh(i)rt.

(I)t is n(o)t a seat.

APPENDIX III

NISBET READING MATERIAL USED IN INVESTIGATION ONE

Appendix III indicates the content of presentation sheets 1 to 76 with which the CII children worked during the first investigation. Presentation sheets 1 to 29 correspond with pages 4 to 32 of the textbook Here We Go in the "Janet and John" series, presentation sheets 30 to 65 correspond with pages 2 to 37 of Janet and John, Book One and presentation sheets 66 to 76 correspond with pages 2 to 12 of Janet and John, Book Two. These textbooks on which the presentation sheets were based are published by James Nisbet and Co., Ltd., London.

The letter (P) indicates that a drawing was placed in association with the printed symbols. The number before each sentence indicated a "turn" for reading aloud and also corresponds with the notations used in the thesis proper. Thus to designate a particular sentence on a presentation sheet of the Nisbet material, the notation of a letteraand two numbers was employed. For example, N5.1 designates the first sentence on the fifth presentation of the Nisbet material.

Beneath the sentences of a presentation sheet are shown those words which are introduced for the first time. No controlled intake of letters of the alphabet is used in the material. The letters which are used to make up the words are shown at the bottom of each page of the appendix.

Presentation Sheet 1.

(P)
1 Janet
Janet

Presentation Sheet 2.

(P)
1 John
John

Presentation Sheet 3.

(P)
1 Come, John, come.
come

Presentation Sheet 4.

(P)
1 Look, John, look.
look

Presentation Sheet 5.

(P)
1 Come, John.
2 Come and look.
and

Presentation Sheet 6.

(P)
1 See the boats.
2 Look, John.
3 See the boats.
see the boats

Presentation Sheet 7.

(P)
1 Janet, Janet.
2 See the boats.
3 Come and look.
4 See the boats.
-

Presentation Sheet 8.

(P)
1 Little dog.
little dog

Presentation Sheet 9.

(P)
1 Come, little dog.
2 Come.
3 Come and look.
-

Presentation Sheet 10.

(P)
1 Janet, Janet.
2 Come and look.
3 See the little dog.
-

Letters of the alphabet used to make up the words of N1.1-N10.3: a b c d e h i j k l m n o s t

Presentation Sheet 11.

(P)

1 Run.
2 Run, little dog.
3 Look, Janet.
4 See the little dog.

run

Presentation Sheet 12.

(P)

1 Look here.

here

Presentation Sheet 13.

(P)

1. Come here, John.
2 Come here.
3 See the little dog.

-

Presentation Sheet 14.

(P)

1 Look, John.
2 Look down here.
3 Look down.

down

Presentation Sheet 15.

(P)

1 Janet, look.
2 Look up.
3 Look up here.

up

Presentation Sheet 16.

(P)

1 Come here.
2 Come and see.
3 See the aeroplane.
4 Janet, look.
5 Up, up, up.

aeroplane

Presentation Sheet 17.

(P)

1 See my aeroplane.
2 Up, up, up.
3 Look, Janet,
4 See my aeroplane.
5 Down.

my

Presentation Sheet 18.

(P)

1 Come and see.

-

Letters of the alphabet used to make up the words of N11.1-N18.1 : a c d e g h i j k l m n o p r s t u w y

Presantation Sheet 19.

(P)
1 See the kitten.
2 Come and see.
3 See the kitten, Janet.
4 One little kitten.

one kitten

Presentation Sheet 20.

(P)
1 I see two kittens.
2 Look, John.
3 See the two kittens.
4 Look down here.

two

Presentation Sheet 21.

(P)
1 Janet, Janet.
2 Come here.
3 I see two kittens.
4 One, two, three.

three

Presentation Sheet 22.

(P)
1 Come and play.

play

Presentation Sheet 23.

(P)
1 Come, John.
2 Come and play.
3 One, two, three.
4 Here I go.

go

Presentation Sheet 24.

(P)
1 Come, little dog.
2 Come and play.
3 Come and jump.
4 Jump.

jump

Presentation Sheet 25.

(P)
1 Look, Janet.
2 Here I go.
3 I can jump down.
4 One, two, three.
5 Jump.

can

Presentation Sheet 26.

(P)
1 Janet, John, and the horse.

horse

Letters of the alphabet used to make up the words of N19.1 - N26.1 : a c d e g h i j k l m n o p r s t u w y

Presentation Sheet 27.

(P)
1 John, John.
2 I can ride.
3 See my horse.
4 See my horse.
5 I can ride my horse.

ride

Presentation Sheet 28.

(P)
1 Look, Janet.
2 I can go up.
3 Here I go.

-

Presentation Sheet 29.

(P)
1 I can jump down.
2 Here I come.
3 One, two, three.
4 Jump.

-

Presentation Sheet 30.

(P)
1 This is Janet.

this is

Presentation Sheet 31.

(P)
1 This is John.

-

Presentation Sheet 32.

(P)
1 See Janet, Mother.
2 See Janet and the can.

Mother

Presentation Sheet 33.

(P)
1 This is Father.
2 See John and Father.

Father

Presentation Sheet 34.

(P)
1 See the dog, Janet.
2 See the little dog.

-

Presentation Sheet 35.

(P)
1 Come, little dog.
2 Come to Janet.
3 See the little dog come.

to

Letters of the alphabet used to make up the words of N27.1 - N35.3 : a c d e g h i j l m n o p r s t u w

Presentation Sheet 36.

(P)
1 Run, little dog, run.
2 Look at the little dog.
3 The little dog can run fast.
fast at

Presentation Sheet 37.

(P)
1 The little dog can jump.
2 Jump, little dog, jump.
3 Mother, look at my little dog.
-

Presentation Sheet 38.

(P)
1 I can skip.
2 I like to skip.
skip like

Presentation Sheet 39.

(P)
1 I can skip fast.
2 I can skip after you.
3 Run fast, little dog.
after you

Presentation Sheet 40.

(P)
1 See the kittens.
2 One little,
3 Two little,
4 Three little kittens.
5 One, two, three.
-

Presentation Sheet 41.

(P)
1 John, see my kitten play.
2 My kitten can play.
3 One, two, three kittens.
4 One little kitten can play.
-

Presentation Sheet 42.

(P)
1 Look, Janet.
2 Look at the basket.
3 One kitten runs to the basket.
4 Jump in, kitten.
5 Jump in and play.
basket in

Presentation Sheet 43.

(P)
1 One, two, three.
2 Three little kittens.
3 See the kittens in the basket.
4 The kittens play in the basket.
-

Letters of the alphabet used to make up the words of N36.1 - N43.4 : a b c d e f g h i j k l m n o p r s t u w y

Presentation Sheet 44.

(P)
1 Look at the boats.
2 Big boats and little boats.
3 John has a red boat.

big has a red

Presentation Sheet 45.

(P)
1 I like big boats, John.
2 Look at the big red boat.
3 I want to go in the big boat.

want

Presentation Sheet 46.

(P)
1 See John in the boat.
2 John is in the big boat.
3 Let me come, John.

me let

Presentation Sheet 47.

(P)
1 Come in, Janet.
2 Come in and play.
3 Let us play in the big boat.

us

Presentation Sheet 48.

(P)
1 John, see the aeroplanes.
2 One, two, three aeroplanes.
3 I can see three aeroplanes.

-

Presentation Sheet 49.

(P)
1 John said,
"See the aeroplane go up.
2 See the aeroplane fly.
3 The aeroplane can fly fast.
4 Fly fast big aeroplane."

said fly

Presentation Sheet 50.

(P)
1 Janet said,
"Look at the aeroplane.
2 I want to fly in it."

it

Presentation Sheet 51.

(P)
1 John said,
"Look, Janet, look.
2 See the aeroplane come down."

-

Letters of the alphabet used to make up the words of N44.1 - N51.2 : a b c d e f g h i j k l m n o p r s t u w y

Presentation Sheet 52.

(P)
1 John said,
"I see a good slide.
2 I want to go on the slide."
good slide on

Presentation Sheet 53.

(P)
1 John went up the slide.
2 Up he went to the top.
3 "See me go up," said John.
went he top

Presentation Sheet 54.

(P)
1 John went down the slide.
2 John went down fast.
3 "See me come down," said John.
-

Presentation Sheet 55.

(P)
1 John said,
"Go up, Janet.
2 Go up the big red slide.
3 Go up to the top."
4 Janet went up the slide.
-

Presentation Sheet 56.

(P)
1 John said,
"I can go up very fast.
2 See me go up the slide.
3 I like to go up to the top
of the big red slide.
very of

Presentation Sheet 57.

(P)
1 Janet said,
"I like to go down.
2 I go down very fast.
3 See me go down, John."
-

Presentation Sheet 58.

(P)
1 Janet said,
"Look at the horses, John.
2 Come and ride.
3 Come on, John.
4 Let us ride on the horses."
ride

Letters of the alphabet used to make up the words of N52.1 - N58.4 : a b c d e f g h i j k l m n o p r s t u v w y

Presentation Sheet 59.

(P)
1 John ran up.
2 "Here I come, Janet.
3 I want a ride, too.
4 I want a ride on a horse."

too ran

Presentation Sheet 60.

(P)
1 Mother said,
"You may ride a horse, John.
2 Jump on, Janet.
3 You may ride too."

may

Presentation Sheet 61.

(P)
1 John said,
"Look at my horse, Janet.
2 It can go up and down.
3 Up and down I go."

-

Presentation Sheet 62.

(P)
1 Janet said,
"I like my horse.
2 It can go up and down, too.
3 My horse can go fast."

-

Presentation Sheet 63.

(P)
1 John said,
"I had a good ride, Mother.
2 My horse went up and down.
3 My horse went very fast.
4 Thank you, little horse."

thank had

Presentation Sheet 64.

(P)
1 Janet said,
"Thank you for the ride.
2 I like my little horse.
3 Good-bye, little horse, good-bye."

For Good-bye

Presentation Sheet 65.

(P)
1 Good-bye!
2 Good-bye!

-

Presentation Sheet 66.

(P)
1 I walked and walked and
what did I see?

walked what did

Letters of the alphabet used to make up the words of N59.1 - N66.1 : a b c d e f g h i j k l m n o p r s t u v w y

Presentation Sheet 67.

(P)
1 I saw Little Puppy
and he saw me.
2 Little Puppy ran.
3 He ran to me.

saw Puppy

Presentation Sheet 68.

(P)
1 I walked and walked
and what did I see?

-

Presentation Sheet 69.

(P)
1 I saw little kittens.
2 One, two, three.
3 "Come here," I said.
4 "Come here to me."

-

Presentation Sheet 70.

(P)
1 I walked and walked
and what did I see?

-

Presentation Sheet 71.

(P)
1 I saw John
and John saw me.
2 "Come and play," he said.
3 "Come and play with me."

with

Presentation Sheet 72.

(P)
1 I walked and walked
and what did I see?

-

Presentation Sheet 73.

(P)
1 I saw Mother
and Mother saw me.
2 "Come home," she said.
3 "Come home with me."

home she

Presentation Sheet 74.

(P)
1 John said,
"I like big trains.
2 I like little trains.
3 I can see a big train.
4 I like to ride in trains."

trains

Letters of the alphabet used to make up the words of N67.1 - N74.4 : a b c d e g h i j k l m n o p r s t u w y

Presentation Sheet 75.

(P)

1 John said,
"There is a big ship.
2 Here is my little boat.
3 I like to ride in big ships.
4 I like to play with little boats.
5 One day I will go in a big ship."

there ship day will

Presentation Sheet 76.

(P)

1 John said,
"I like aeroplanes.
2 I want to go up in an aeroplane."

-

Letters of the alphabet used to make up the words of N75.1 - N76.2 : a b d e g h i j k l m n o p r s t u w